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GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE *in that the size of the page has been reduced from* 9 *in.* × 12 *in. to* 8½ *in.* × 11½ *in. The type area of the page remains the same, namely,* 7 *in.* × 10 *in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war*

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 *a.m. till* 5.30 *p.m.*
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Whitsun Holiday Travel

REPORTS as to the amount of travel over the Whitsuntide holiday shows some variation, but it appears that on Saturday at least, there was heavy passenger movement by rail. On the other hand the queues, although long, did not appear to be so much worse than on other recent Saturday mornings. Stations serving the South Coast and West Country bore the brunt of the travel, and traffic to South Wales and Birmingham was fairly heavy, but at the terminals for the North there was less congestion. Blackpool reported its busiest wartime Whitsuntide, but the town still had ample accommodation in reserve. The traffic on Sunday and Monday did not give rise to undue congestion and the reiterated advice not to travel at the weekend, unless for necessary purposes, seems to have had some effect in restraining many who otherwise, no doubt, would have been tempted to leave towns for pleasure resorts. There have been no reports of substantial numbers of passengers being left behind on their homeward journey. In general, it may be said that the railways showed themselves well able to cope with the traffic, and that the mass of the people responded to the injunctions against wartime holiday travel. In part, the provision of facilities and entertainments for holidays at home, helped to ensure recreation without overburdening transport.

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Holiday Travel and Rationing

Mr. P. J. Noel-Baker, Joint Parliamentary Secretary to the Ministry of War Transport, on June 9, mentioned some interesting facts about railway travel and referred once more to schemes of rationing and priority. The railways are now carrying 50 per cent. more passenger traffic than before the war—in addition to 50 per cent. more freight traffic—and passenger train mileage has been reduced by about 30 per cent. Thus, passenger trains are carrying approximately twice the 1939 load. In journeys by service personnel the increase for the last twelve months for which he had the figures, was 24 per cent.; of journeys of between 100 and 200 miles, 60 per cent. were made by members of the Forces, and of journeys in excess of 200 miles the figure was more than 80 per cent. The railways had been instructed that their passenger-train mileage this summer must not exceed the mileage allowed last summer, and that for holiday occasions there must not be any more trains from any town to any holiday resort than there were on similar occasions a year ago. The Minister of War Transport had repeatedly considered proposals for schemes of rationing and priority, and had come to the conclusion not only that they could cause great inconvenience to travellers, but that they would require a cumbrous and costly machinery, and that the disadvantages would much outweigh any advantages they might have. On many long-distance services, Mr. Noel-Baker said that the increase of essential travel had caused constant and serious overcrowding, and the Minister of War Transport was considering whether a few additional trains can be allowed, on the clear understanding that they would be taken off again without warning should war conditions require such action.

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Mr. Samuel Jackson

The sudden death of Mr. Samuel Jackson, M.I.Mech.E., M.I.Loco.E., Works Director of Gorton Foundry, Manchester, and a member of the board of directors of Beyer, Peacock & Co. Ltd., has removed a locomotive engineer of great distinction. Mr. Jackson, who was in his 64th year, had been with Beyer, Peacock & Co. Ltd. for 43 years and eventually became responsible for the design and manufacture of numerous types of locomotives for railways all over the world. In collaboration with the late Mr. H. W. Garratt, he made the first Garratt locomotive design, which was used for the Patent Specification and the many remarkable engines of the now well known Beyer-Garratt type will ever remain as a monument to his outstanding abilities. It may truly be said that he created the basic technique of this system of articulation. Mr. Jackson commenced a three years' pupilage at Gorton in 1900, after serving as a premium apprentice at the Crewe Works of the L.N.W.R. for four years. On completion of his pupilage he was engaged as a draughtsman, and for many years was in the special designing department where new designs of locomotives are prepared. His outstanding works in this connection earned him a wide and well-merited reputation. He had an amazing memory for locomotive detail and a great and accurate knowledge of Continental and American practice and no point of a locomotive was too small to receive his attention. One of the latest works on which Mr. Jackson was engaged was the heavy-freight (war standard) Beyer-Garratt locomotive, of which details were given in our last week's issue. His passing is a loss to the firm, the locomotive industry, and indeed the country. Some biographical notes and a portrait of Mr. Jackson will appear in our next issue.

Mr. Morrison's New World

Mr. Herbert Morrison in his development from pacifism to belligerency appears to have adopted as his slogan: "Attack is the best form of defence." His recent address to the Fabian Society was a martial affair, and in line with recent declarations by him to which some space is devoted at page 603. He declared that full employment was the "absolute test by which success in planning and building the new world" would be judged. To secure it, it would be necessary to get right away from the philosophy of financial and economic restriction that had governed for a decade or more before the war, and that there must be a break with private monopoly in all its forms. He made an attack on private monopoly, financial and economic orthodoxy, and called for the "spur of public ownership or constructively applied control" to a number of industries. Without being very specific, he expressed his belief that some industries were overdue for socialisation and that others needed "the guiding and stimulating hand of the State." He characterised as "nineteenth-century claptrap" the talk of the dead hand of the State, and said that the people of this country were looking for practical programmes and honest, vigorous leadership. No doubt Mr. Morrison is honest in his beliefs, but as to whether his programmes are practical or not there is room for doubt.

British Colonial Empire

The British Commonwealth of Nations is a typical British product, the result of gradual and almost fortuitous development, and not of deliberate planning. Its constitution is difficult to describe in terms of political theory, but it is nevertheless a live political association in full working order. Our friends have shown little understanding of the history and significance of this Empire—partly, no doubt, because we have never undertaken the task of explaining it—and our enemies have openly admired, envied, and coveted it for reasons of commerce, living space, and prestige. During the present century the British Government has changed its attitude and policy in a revolutionary way, and the aim of British Colonial policy now is to promote self-government in the Colonies, not only through the development of their political institutions, but also through the advancement of their social and economic standards. Quite recently there has been a move towards explaining this policy, and its historical background, by means of authoritative but semi-official books. One such volume, by Mr. Noel Sabine, of the Colonial Office, forms the subject of a brief notice this week (page 607). In this he makes the point that there has never been in Great Britain any dynamic popular urge towards Empire building. The first steps were those of a few adventurous men who discovered new lands and established trading posts in them; later, New World settlements were peopled by sturdy independents seeking freedom of conscience. Even in the expansionist Imperialist era of later Victorian days, new lands were added to the Dominions of the Crown often reluctantly and with halting steps. So far from driving the peoples of the Empire apart, the war has drawn them closer together, and the post-war position of the British Colonial Empire is a matter of intimate concern to all who have to consider the post-war world and its commerce.

London Transport Women's Uniform

Originally, the uniform issued by the London Passenger Transport Board to its women railway porters, and bus and tram conductors, consisted of a tunic, divided skirt, dust-coat, and cap, but it was found that the tunic was too warm for summer use and not sufficiently warm for the winter. Therefore, the issue of tunic and skirt was discontinued. The dust-coat then constituted the summer garment and an overcoat was issued for the winter. Slacks replaced the divided skirt, as the majority of staff preferred this garment, and it may be that opinion was influenced by the difficulty of obtaining adequate supplies of stockings. The hat has undergone some slight modification to give greater comfort. The present issue of clothing to bus and tram conductors is as follows: On appointment, one overcoat, two dust-coats, two pairs slacks, one cap; thereafter, the rate of replacement is one overcoat every three years, one dust-coat every two years, one pair slacks every year, and one cap every two years. Similar arrangements are made for the women railway porters, who receive on appointment the same as the conductors, with the addition of two overalls (wrap-over type) for use when the porters are engaged on cleaning work. The rates of replacement of overcoat, cap, and slacks are the same, but the porters receive a dust-coat and an overall every sixteen months. All women conductors and porters surrender coupons at a special rate, determined by the Board of Trade.

Mr. H. S. Balliet

The death of Mr. H. S. Balliet, which is recorded on page 619, removes a distinguished figure from the American signal-engineering world. He gained his principal early experience in signalling on the Lehigh Valley Railroad, which was among the first of the lines in the United States to install track circuit and automatic signals on an extensive scale. This well qualified him for the important work he was called on to supervise in 1907, when the electrification and re-arrangement of the lines in and approaching the Grand Central Terminal, New York, necessitated the installation of large power signal-boxes on each level, and others on the route from Woodlawn, and complete automatic and semi-automatic signalling with double rail traction return, an important and far-reaching development. Mr. Balliet's work as Secretary of the Signal Section of what is now the Association of American Railroads represented a valuable service to the signalling profession. He was always ready to give others the benefit of this wide knowledge and experience, and he corresponded regularly with signal engineers in other countries. The history of signalling possessed a great attraction for him, and he had collected gradually much detailed information on the subject, on which he occasionally lectured.

The Cash Value of History

On Tuesday of last week the Phillimore Railway Collection ceased to exist as a collection, and its items, disposed of by auction in 337 lots, realised the total sum of £3,366 19s. At the beginning of the sale it was offered as one lot and received the final bid of £2,200, which was below the reserve price. Although we share the regret that an intelligent collection has been dispersed, we do not hold the view that records of railway history have been seriously impoverished thereby, as the late Mr. John Phillimore's acquisitions consisted very largely of "collector's pieces." Some surprisingly high prices were secured, and almost certainly indicated that there is much money about and not many ways of spending it. For example, a copy of the first *Bradshaw* (10th mo. 19th. 1839) obtained £27, which we believe to be £2 higher than the previous record price, which has stood for 42 years. The George Stephenson collection of documents, autograph letters, and two superseded wills passed for £105. A pair of original painting by Alken passed for £50, and two large glass goblets with engraved pictures of the *Rocket* for £35. A collection of 83 railway passes and metal tickets netted the even £100, and the catalogue of the collection with historical notes, £32. Some representative prices are given on page 621.

U.S.A. Freight Rate Reduction

An expression of the view that the increase in the volume of traffic in the U.S.A. is such that the railways do not now require to charge increased goods rates, has been made by the Interstate Commerce Commission. That Commission has suspended from May 15 until January 1, 1944, the authorised increases, amounting in general to 6 per cent., which were established on March 18, 1942. It will be recalled that the increases thus suspended were made upon the authority of the I.C.C. on account of increased costs of operation resulting from wage increases, advancing prices of materials and supplies, added expenses of expediting war transport, and necessary protection against sabotage. Obviously, these increased costs have not been removed, but the view is held that they can be met out of profits resulting from greatly increased turnover. The decision of the I.C.C. was far from unanimous, as it was carried by six against five. Commissioner Porter, one of the dissentients, said: "To my mind, what is here done reflects a narrow and short-sighted policy and is not in the public interest because, first, it is not conducive to the maximum war effort, and, second, it is reflective of the same stunted, lackadaisical attitude toward post-war needs which was so largely responsible for the impoverished conditions of the railroads shortly after the first world war." He believed that the removal of the increases would not have the slightest noticeable effect upon the retail price of a single commodity.

An Accident under Continuous A.T.C.

Particulars are now available of a rear collision which occurred on December 26, 1942, at Dixon, Chicago & North Western Railway, on a section of line equipped with continuous cab-signalling, automatic train and speed control, but no fixed signals, except in interlocking areas. They show how imperative it is that every item of such equipment should be designed to fail on the safe side and preferably indicate automatically that it is not operating as intended. The only signals the driver has on ordinary through sections are his cab indicators.

combined with the audible warning, if there are no lineside automatic signals, as in this instance. The driver was killed and the fireman could not speak as to the condition of the cab signals just before the collision. Had, however, the speed control apparatus been in order, the speed of the train ought to have been brought down by it automatically to about 23 m.p.h. at the point of collision, whereas it was actually about 40 m.p.h. The front wheels of the engine were found to be magnetised enough to influence the receiving equipment and part of the governor gear was broken, but whether before or as a result of the accident was not established. The addition of lineside signals is officially recommended, a decision likely to have far reaching effects and influence policy in the future.

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How Many Coupled Axles ?

When the 4-4-0 " Schools " class of locomotive was brought out on the Southern Railway the step may have seemed retrograde but, in fact, the loss of 18 tons adhesion by comparison with the " King Arthurs " did not result in a noticeable loss of tractive performance. The use of three cylinders in the four-coupled engine levelled out the peaks in the turning effort characteristic and brought about a measure of self-balance between reciprocating parts so that each ton of adhesion was made good for upwards of 50 per cent. more tractive effort. A few years ago the time was thought ripe for the introduction of eight-coupled passenger locomotives on British railways but it now appears certain that, given a suitable three- or four-cylinder arrangement all normal requirements can still be met with six-coupled wheels. American practice favours the two-cylinder arrangement with a factor of adhesion round about 4·25 or greater. British practice, as exemplified by the " Schools " engines, and again by the Pacifics of the G.W.R. and the L.M.S.R., proves that the factor of adhesion may safely be cut to 3·75 if inside as well as outside cylinders are used. The present tendency in America is to employ eight-coupled wheels for express passenger work but six might suffice there as here, given additional cylinders.

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High-Speed Locomotives

When a speaker at a recent meeting of the Institution of Locomotive Engineers expressed a preference for the straightforward two-cylinder type of locomotive it was pointed out that the design of such a locomotive to give the performance of, say, a " Merchant Navy " class locomotive would be a physical impossibility, if it were made subject to the same weight and dimensional limitations. The load that can be allowed on an axle is related to the degree of balance achieved; in this respect the two-cylinder design is at a serious disadvantage. American engineers are notoriously prejudiced against the use of inside cylinders; they avoid their use even in high-speed streamliners. As a direct result more is heard about destructive hammer-blow effects in America than in this country, and the exponents of diesel traction have not been slow to seize on the imperfections of the ill-balanced two-cylinder steam locomotive when drawing comparisons between diesel and steam units for high-speed work. In this country locomotive engineers have not allowed prejudice to stand in the way of progress; consequently modern British steam locomotives are much better fitted than American ones to meet the challenge of electricity and the diesel; they will be more difficult to excel in any speed contests that may be inaugurated after the war.

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American Locomotive Orders in 1943

Two features of the American locomotive-building programme for 1943, reviewed on page 580 of our last week's issue, are the vitality of steam, in face of competition of diesel-electric propulsion for both passenger and freight traffic, and the power of the steam locomotives ordered. It is significant that 138 of the 489 locomotives on order, or 28 per cent., are to be of articulated types; the Southern Pacific alone has under construction 50 of its very large 4-8-8-2 standard type, of which a considerable stock is being built up. Another point of note is the popularity of eight-coupled wheels; apart from 95 2-10-4 engines, all the non-articulated steam locomotives under construction will be eight-coupled; with two exceptions, the latter will be large 4-8-4, 2-8-4, or 4-8-2 units. Including articulated types, 336 of the 489 locomotives, or 69 per cent., are to be eight-coupled; 95, or 19 per cent., ten-coupled; and the remaining 58, or 12 per cent., six-coupled; but the last-mentioned all will be articulated locomotives with two groups of coupled wheels. None of these orders is for passenger power exclusively; 98, or 20 per cent., are classed as for passenger and freight; the remaining 80 per cent. are to be exclusively freight locomotives, except for two 0-8-0 shunters.

The Future of Transport

AMONGST the various expressions of opinion as to the post-war arrangements for transport that have been made recently by responsible spokesmen, the views expressed by Mr. Herbert Morrison are perhaps outstanding. Mr. Morrison has not dealt specifically with the subject but in several speeches he has mentioned it, and these have now been brought together in handy form in a pamphlet entitled " Prospects and Policies."* Most recent speakers about post-war transport have never been free from ambiguity. There was the speech made in the House of Lords on June 17, 1942, by Lord Reith, who made a very long statement of his views but only gave a hazy idea of the changes he thought should be made. Like many others he advocated a national transport corporation, but did not say clearly who should own it or how it should be controlled or even whether it should be self-supporting. Mr. Morrison appears to be free from such ambiguity as this, but the words he uses in connection with transport should be considered with great care, otherwise one is apt to get a misleading impression from them.

In a speech at Swindon on December 20, 1942, he remarked that instead of leaving industries which are national monopolies in private hands, better national service would be got from them if they were turned into public corporations like the Central Electricity Board or the London Passenger Transport Board. This appears to mean that such industries are to be privately owned but that those who control them should not be appointed by or be responsible to the private owners. Again, at Leeds on April 3, 1943, Mr. Morrison declared that the transport industry was " ripe—or over-ripe—for public ownership and management." Does he mean by this that the State should own and manage the transport industry, or does he mean that it should continue in private ownership but should be managed by people not responsible to the owners? After this speech at Leeds, Mr. Morrison gave an interview to *The Observer*. He again spoke of public ownership of transport and went on: " I believe it is necessary to fuse road and rail transport." He suggested that the thing to do was to take the land transport system as a whole and run it as a consolidated concern with the railways and road transport each giving its best service. Then he said that this consolidated concern would be a " public corporation." This apparently means, not public or State ownership, as it is generally understood, but continuance of private ownership with management free from responsibility to the owners.

Mr. Morrison's views can best be found set out in detail in his book published in 1933, " Socialisation and Transport." In a chapter on the public corporation, he starts off with this sentence: " We are seeking a combination of public ownership, public accountability, and business management for business ends." The words " public ownership " should be noted. He then makes it clear that the owners would receive an exchange of stock for their property but without any State guarantee that a return on it would be paid. Further, " the representation of shareholders is inconsistent with the public status of the new board and would to whatever extent it was applied convert the public corporation into something very much like a private company." Therefore such representation would be rejected. Finally, one of the reasons why the State would not guarantee to the owners a return on their capital was that " it might well have encouraged a spirit of slackness on the part of the board in matters of management." Be it noted, a spirit of slackness by a board which is not in any case responsible to the owners, and yet it is the latter who have no guarantee of a return on the money they have invested in the business! It is at least clear from all this that when Mr. Morrison speaks of public ownership he has in mind something different from the common meaning of the phrase. There could be no doubt that if an investor had the choice between Mr. Morrison's idea of public ownership and of socialisation in its true sense, he would choose the latter. The risk would then be where it should belong: on those who control the use of the capital. Once that question is settled, the relationship of ownership to management should not be a political issue; it raises questions of fairness and justice.

If the owners of an undertaking do not control the management, they continue to take the risk in providing the capital, but they would be unable to protect that capital against risk, whether due to the ordinary risk in any provision of capital or to a " spirit of slackness " in a direction without responsibility to the owners. (This is particularly important if there is an equity stock.) If the State guaranteed the risk it would be transferred to the taxpayer, and if the undertaking was inefficiently managed, the taxpayer would foot the bill, but there would be the " public accountability " referred to by Mr. Morrison. There have been instances, however, where this public accountability has been ineffective in preventing actual losses, or in

* Prospects and Policies, by the Rt. Hon. Herbert Morrison, M.P., Cambridge University Press, 6d.

securing a reasonable return on the capital, but that is another matter. Naturally the risk would be increased if an undertaking had to compete with another that was owned or subsidised by the State; in fact it would amount to confiscation of capital and if continued would bring the undertaking to ruin, or State assistance would be required for it also. During this process the owners would have no say in the matter. These are the drawbacks to the divorcing of ownership and control. The other side of the picture is that management would be freed from direct responsibility other than to public opinion and would be able to concentrate more on meeting public requirements, leaving the shareholders to take the greater risk (the reverse of "no taxation without representation"). The payment of dividends would not obtrude—Lord Reith's objection to private ownership and control—since, if there was no State guarantee, shareholders would simply be paid what was available for payments and there would be no calling to account at shareholders' meetings.

Weighing these advantages and disadvantages, the conclusion, if efficiency and economy is the need, is clear: the owners, whether State or private persons, should control the management. If private owners are the controllers, it ought to be possible to improve on the present system of shareholders' control to make it more direct and effective. If the State are the controllers, no comment is necessary, as how this would work is well understood. But "bastard socialism," that is, public corporations owned by private capital but not controlled by it would neither be efficient nor economic in the national interest.

Military Railway Work in Great Britain

SINCE the evacuation of France in 1940 many railway units of the transportation service of the Army have been in Great Britain. It has been realised that these units have not been idle and it has been a matter of regret to those who take an interest in these units that no information has been released about the work that they have been doing. Now, however, the veil has been partially lifted by the War Office, which arranged for a party of press representatives to visit two army stores depots to see at one the railway side of its construction and at the other its operation after completion. It is to be hoped that this is but the forerunner of other visits of the same kind. A description of this visit is on pages 611-614. All armies in all countries must have stores depots and there must be so much in common in the methods of constructing and operating them that technical descriptions of these, provided that names of places are rigidly excluded, are not likely to betray secrets. Reference was made during preliminary discussions to the fact that, in addition to work done exclusively for army services, some work had been done for the civil railways in the repair of bomb damage and the provision of additional facilities necessitated by changes and increases in traffic due to the existence of a state of war. Works carried out by the civil railways for the purpose of handling the greater volume of wartime traffic have been described in *The Railway Gazette*, sometimes in considerable detail. It would be of interest to all railwaymen in the Empire, and good publicity, if similar descriptions were permitted of work done by the Army for the civil railways.

The work which was seen provided ample proof of the soundness of the peacetime training carried out by both the Regular and the Supplementary Reserve transportation units. The one difference which was very noticeable was the great use made of mechanical earthwork equipment, that is, for the excavation, moving, and placing of the large quantities of earth needed in railway construction. The annual training periods available for the Supplementary Reserve precluded the inclusion of large "mechanised" earthwork jobs in their training. As experience has shown, the formation during wartime of special companies for this class of work has proved entirely satisfactory. Special attention is called to the description of the method of working the traffic in the completed depots. This system provides a simple and effective means of ensuring safety and preventing congestion and confusion. It relieves the operating staff of a great deal of worry and uncertainty which would otherwise exist in such large areas, and contributes largely to the good results obtained over long periods of working.

During the inspection of the track-laying work in the depot triage the Railway Construction Engineer in charge stated that in open-line work, where it was not possible to distribute the track material from an adjacent siding, but where it had to be carried forward from the material train, the factor limiting progress was the fishing up of the rail joints. This statement is supported by experience. In one theatre of operations in the last war where a large mileage of open line was laid it was found that the fishing up of the joints was a definite limit to the rate of progress. With skilled men, when they had sufficient experience to attain the highest state of drill and team work, the joint-to-joint time was reduced to just under one minute which, it will probably be agreed, was a very good rate of progress.

Stress was laid on the very willing assistance extended to the Army Units by the civil railways. Officers of the civil railways have attended innumerable reconnaissances and consultations and have invariably given every assistance in their power. The cordial relations which have existed between the railway units of the Royal Engineers and British civil railways provide an example of co-operation which it would be difficult to surpass or even equal.

The arrangements made by the War Office Public Relations Department functioned very smoothly. Its local representatives did everything possible to make the visit a success, not forgetting the creature comforts of the party. The visit was extremely interesting and it is hoped that it will be followed by others, so that the public may be afforded an opportunity to understand and appreciate the excellent and valuable work being carried out by its technical soldiers.

German Locomotive Position

ALTHOUGH little reliable information is available about the German locomotive position, it seems that the improvement forecast by the Germans for this summer has not so far materialised, but rather that the position has deteriorated, and is causing anxiety. Many times in the past we have discounted the wishful thinking which has caused even official quarters in our own country to hint at the impending collapse of the German railway transport system. We have shown that in some quarters a false presentation of statistics has produced a misleading impression of the strength of the German railway system as a weapon of war. Our view, based on some knowledge of the German railways right up to the outbreak of war, was that the Reichsbahn was a well-organised and powerful unit, capable of considerable overload capacity. This view has been amply vindicated by the fact that for nearly four years the German military machine has not failed through transport difficulties to have its armies and equipment (and reinforcements) wherever they have been required. Nor has the internal economy of Germany collapsed through lack of transport, although drastic restrictions have been imposed so as to direct the whole of the energies of the Reichsbahn to the furtherance of the German war effort.

It is therefore in no irresponsible way that we now refer to a change in the position, which appears to justify the view that in transport the corner has been turned. It seems that German transport (and in particular its locomotive position) has reached a stage where more rapid deterioration in the immediate future may be expected. We have previously pointed out that such statistical comparisons as those of wagon units only, without any reference to capacity or speed of turn-round and transit, give false impressions. Similarly, numerical comparisons of steam locomotives, ignoring their capacity and also ignoring other forms of motive power used, cannot lead to correct conclusions. Doubtless, some very alarming figures could be produced in relation to the steam locomotive stock of our own Southern Railway, if its extensive programme of electrification during the past two decades were ignored. Undoubtedly there were reductions in the totals of steam locomotives on the German railways during the ten years preceding the war, but the justification lay in the greatly increased power, efficiency, and availability of the modern engines. Moreover, the occupation of most of standard-gauge Europe has given the Germans the benefit of considerable increases in its available locomotive stock. Now, there are no other territories which show any likelihood of producing substantial locomotive additions. Moreover, the continuous attacks of the R.A.F.—with ever increasing severity—on locomotives in service, on locomotive-building establishments, and on repair facilities, throughout German-occupied Europe, leave little doubt that destruction is far exceeding possible replacement.

The German locomotive building programme is known to have fallen behind schedule. The reason for this is to be found in part in the air raids on Henschels at Kassel, Krupps at Essen, Schneiders at Le Creusot, Fives-Lille, Batignolles at Nantes, and Cockerill at Liége. In addition, there has been substantial damage done to the repair shops at Lingen, Paderborn, and Julich, as well as Duisburg and Düsseldorf. For example, the damage caused to the locomotive repair shops of Lille-Hellemmes in the attack on January 13 by the U.S.A. Air Force was so extensive that work at these shops has not yet been resumed, and the staff has been distributed among other locomotive shops in France. At Le Creusot no repairs have been made to that part of the works which builds locomotives since the attacks by

Lancasters by daylight on October 7, 1942, more than eight months ago. From time to time, in "Transport Services and the War," we record the official R.A.F. announcements about the destruction and damage of locomotives on the Continent, and the latest figure is that during May about 150 engines were put out of action during intruder operations. In addition to the number of engines destroyed by Fighter and Army Co-operation Commands, the damage to railway repair shops and locomotive depots in raids on Berlin, Essen, Munich, Nuremberg, Stuttgart, Trier, and Thionville, including destruction of engines under repair, has been sufficiently heavy to reduce repair capacity at the shops for some time. The congestion at shops which have not been attacked is such as to make impossible the complete transfer of work normally carried out in the damaged shops.

The Long Island Rail Road

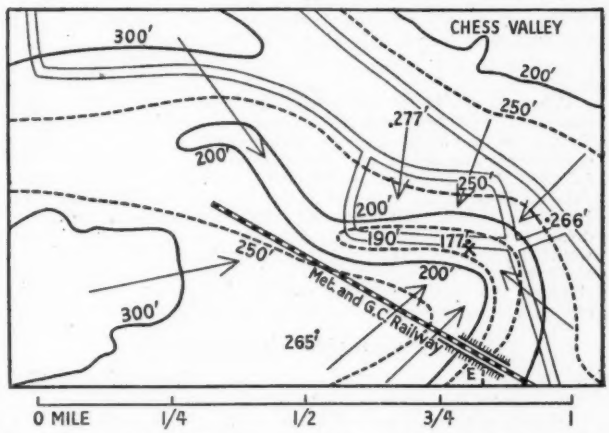
IT is not often that a railway in a difficult financial position goes to an outside organisation to obtain a frank independent survey of that position and of its prospects, and also any proposals the investigators may have to put matters on a better footing. This step has just been taken by the Long Island Rail Road in the United States, which has not only called in a well-known New York firm of engineers to investigate, but has also made the findings known to its patrons by a series of advertisements in 118 daily and weekly newspapers in New York, Brooklyn, and Long Island. Few railways have been through more remarkable vicissitudes in their history than the Long Island. It is the oldest but two of the railways in the United States; it was chartered in April, 1834, to provide a direct rail-and-water route between New York and Boston by way of Greenport, Long Island, and steamers across Long Island Sound to Stonington, Connecticut. It was not until July, 1844, that the Greenport line was opened, and after only four years of prosperity this traffic melted away when through mainland rail communication was opened between New York and Boston; by 1850 the L.I.R.R. had been forced into receivership. Fifteen years later the line was showing signs of returning prosperity, but passed through various vicissitudes and right up to the turn of the present century.

It was not until Henry W. Thornton, later to become General Manager of the Great Eastern Railway of Great Britain, took over the post of General Superintendent of the L.I.R.R. that the line got on its feet. Under his *ægis* the Long Island was the first American steam railway, in 1905, to introduce electric traction, between Flatbush Avenue terminal and Rockaway Park; in the same year, also, it took the lead in the U.S.A. in introducing all-steel coaches into regular passenger service. By 1930 the Long Island had attracted no fewer than 83,348,000 "commuters," or season ticket holders, and from them was obtaining a yearly revenue of $13,418,000. Even today the L.I.R.R. is the only Class 1 railway in the United States which derives more revenue from passengers than from freight; in 1941, indeed, passenger revenue was 61·6 per cent. of the total, as compared with only 33·3 per cent: from freight, and the line still lays claim to one-fifth of the total number of commuters in the U.S.A. Herein lies the weakness, for the present total of Long Island commuters has shrunk to 48,000,000 or little more than half the peak-figure of 1930. For this shrinkage there are three main reasons. The first is the wide extension into many parts of the Brooklyn suburbs of the subsidised subway lines out of New York, offering door-to-door transport at cheap rates with which the railway cannot compete. The second is costly schemes of improvement, running into many millions of dollars, that the railway has been forced to undertake in Brooklyn and other parts of Long Island, coupled with constant and crushing increases in taxation, which is now equivalent to a tax of 5·8 cents on every passenger trip; the third is the fact that the commutation rates charged by the railway are far too low in relation to the value of the service they provide. In 1910 the Long Island came under the financial control of the Pennsylvania Railroad, and by this means was brought under the East River into the new Pennsylvania Station in the heart of New York, which is used daily by more Long Island than Pennsylvania passengers. At present the L.I.R.R. is in debt to the P.RR. to the extent of $10,000,000.

A Railway which Affects Climate

IT is well known that the operation of railways is considerably affected by climatic factors, especially in the winter; snow, frost (at any rate glazed frost), wind, and dense fog may seriously interfere with their working. But can a railway, just by being there, affect the climate of a locality? It is difficult to believe, but it may do so, and there is one conspicuous instance where records of exact observations show that it has done so. The Metropolitan Railway (now leased to the Met. & G.C. Joint Committee) immediately after passing Rickmansworth runs into the foothills of the Chilterns, and crosses on a fairly high embankment (pierced by a low and narrow outlet) a somewhat deep and narrow valley running north and then west. When the line was first made the whole of this area was open country, but in recent years the Cedars Estate has grown up, and includes a road, Valley Road, along the bottom of the valley. Several houses have been built there, one of them to the order of Mr. E. L. Hawke, the Secretary of the Royal Meteorological Society, who began taking regular observations there in 1929. Mr. Hawke has now left Rickmansworth, but the observations have been continued.

It soon appeared that the climatic conditions, as to temperature, were peculiar—almost unique. The place showed all the characteristics of a "valley climate" in an extreme form. Frosts were very frequent, and on cold nights the temperature fell faster and lower than anywhere in the district or county. On clear calm nights the cold air flows down the sides of a valley, and gets coldest at the bottom, dispersing where the lowest level opens out. Here the Metropolitan Railway came in and prevented dispersal; the embankment acted as a dam to a reservoir and impounded the cold air like water in a pond. Had the gap been bridged, instead of crossed by a solid embankment, much of the cold air would have escaped and the record of the station for low night temperatures and extreme ranges (for the enclosed position causes an increased temperature on a warm day) would not have been achieved. In wet, muggy, or stormy weather there is no appreciable difference between the valley and the surrounding country. All this is discussed fully by Mr. E. G. Bilham in his "Climate of the British Isles"



Topography of Rickmansworth Climatological Station

(Macmillan) with tables showing the remarkable contrast between Rickmansworth and Rothamsted, 14 miles away in an open situation. The following figures show the difference for 1931-1935:—

	Temperature	
Rickmansworth	January	July
average maximum ...	44·5°	75·2°
average minimum ...	28·7°	48·5°
average daily range	15·8°	26·7°
Rothamsted		
average maximum...	42·7°	71·0°
average minimum ...	33·2°	53·6°
average daily range	9·5°	17·4°

In 1935 Rothamsted had a maximum of 84° and a minimum of 13°; at Rickmansworth the corresponding figures were 89° and 7°. In fact the mean daily range of temperature here, which exceeds 21° over the year, is probably greater than at any other place in England, and for this condition there can be little doubt that the railway embankment is largely responsible. Even during the last mild winter, when there was little if any frost in London, and not more than 10° in the country outside, Rickmansworth dropped to 15·5° in November, 1942, and 15·9° in January, 1943, and during the recent severe winters the thermometer there has more than once fallen to about zero. There may be other places in England where somewhat similar conditions prevail, but they can be very few and no climatic record has been made of them. It should be added that the town of Rickmansworth and the bulk of the Cedars Estate are not affected in any way, and cannot be considered as a "frost-hole."

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

"Pre-Nationalisation" British Railways

Essex House, Essex Street,
Strand, W.C.2. June 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It is extraordinary that, when Mr. James Grahame, C.A., Glasgow, compiled from the Report of the Royal Commissioners on Railways, 1867, the map reproduced on page 567 of your issue of June 4, he should have treated the Great Western line from Reading to Bath *via* Newbury and Devizes instead of the real main line *via* Didcot and Swindon as having been authorised before 1844, thus leaving on his map the Oxford and Cheltenham branches hanging in mid air.

Yours faithfully,
KENNETH BROWN

Old and New Locomotives

House of Commons. June 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your descriptions of austerity locomotives of various designs, and also of those imported from the U.S.A., are very interesting and informative for one speculating on their effect on future design, but we must not overlook the splendid work long done by the hundreds of old locomotives now pressed into service—hundreds of Joy's gear engines 8, 6, and 4 coupled, still doing well with a gear introduced by Webb on his compounds, old Midlands with safety valves on the dome. What about the Claughton? One does not see them about, yet with their new boiler they would be worth a cylinder modification and freer exhaust to form front-line express locomotives. In these days of locomotive shortage we should do our best with our own stuff before importing from the States.

Yours truly,
ALAN CHORLTON

[There are still in existence, 43 Claughtons—42 of them, numbered 5500-5541, are of the type rebuilt by Sir Henry Fowler as 3-cylinder engines with boiler, motion, and other components similar to the Royal Scots, and form part of the L.M.S.R. "Patriot" class. The other Claughton, Number 6004, *Princess Louise*, has a larger boiler as fitted by Mr. H. P. M. Beames at Crewe. All these and many other old locomotives are doing hard front-line work, although probably few of them would have survived had not the war halted the progress of new construction. The utmost use is being made of all old locomotives on the British railways but the purposes for which these can be used is necessarily limited.—ED. *R.G.*]

Locomotive Exchanges

Edinburgh, May 26

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It has always seemed to me a pity that so little has been done in Britain in the way of systematic and regular exchanges of locomotives among the various companies, especially in pre-grouping days. Great opportunities were thus lost for comparing the performance, on identical duties, both of similar types differing in only one or two dimensions, and of contrasting designs of equal tractive force. Must not progress in design have been greatly hampered and retarded by this policy? Under a nationalised system, such a policy would have been taken as arguing a gross lack of intelligence somewhere; but, of course, under private enterprise such an inference is not permissible!

Even of the few exchanges which did take place, little result is traceable before the days of grouping (itself a sort of quasi-semi-nationalisation). The testing of a Highland "Castle" and a N.B.R. "883" led neither the latter company to adopt 6-coupled passenger engines nor the former to try out a really large 4-4-0, despite the fact that the "883" beat the "Castle" in all parts of the trial (not counting fuel consumption, which does not seem to have been divulged). A possible, though not probable, result was the adoption of 6-ft. wheels instead of 5 ft. 9 in. in the later H.R. 4-6-0s.

A similar lack of positive results followed the exchange of a N.B.R. Atlantic and a L.N.W.R. "Experiment"; the N.B.R. tried to reduce the coal consumption of its 4-4-2's but did not produce a 4-6-0 of its own. How interesting would have been a thorough try-out of N.B. No. 903 (4-4-2) against Caledonian No. 903 (4-6-0) on their own ground; especially before the latter was spoiled by having her pressure lowered at the fitting of a superheater—a cardinal error which was not made in the case of the former. Were the results of the trial of these types between Crewe and Carlisle ever divulged?

I wonder whether any attempt has ever been made to apply the modern statistical technique known as "analysis of variance" to the separating-out of the influence on performance of the varying dimensions of different designs of locomotive? On the one hand we have a set of "design" variables such as total cylinder volume (itself separable into number of cylinders, area of piston, and length of stroke), driving-wheel diameter, boiler pressure, total heating-surface (sub-divisible into several sub-variables like tubes, firebox, and superheater, or diameter and length of barrel and number and diameter of tubes, etc.), grate area, total weight, adhesion weight, and so forth. Or certain ratios of these might be used in place of "crude" magnitudes. On the other hand, we have another set of variables such as loads, speeds, gradients, fuel, and water consumptions, cost of maintenance, etc.—that is, "performance" variables. Given a sufficient mass of data, there would seem to be here a field for the useful application of analysis of variance. Even variables of driving technique (regulator opening, cut-off, frequency of firing, etc.) might prove to be analysable provided accurate records of such variables were kept over a long enough time. (By "analysable" I mean that their several effects on performance might be estimated.)

There is at present an opportunity to compare the work of the two "austerity" 2-8-0 types, British and American. Wheel-arrangement, weight, driving-wheel diameter, pressure, and number of cylinders are practically identical; but there are striking differences in (i) cylinder dimensions, (ii) heating-surface, (iii) grate area, and (most of all) (iv) *ratio* of (ii) to (i). If there be a locomotive expert sufficiently "high-up" at the Ministry of War Transport, I hope he will see this letter and arrange for a series of comparative trials of these two designs.

A final word: one cannot expect a 2-8-0 to look "pretty," but the vast increase in ugliness of both these types over the G.C. 2-8-0, which was the standard R.O.D. engine in the last war, is noteworthy. Let us hope it is compensated for by an equally vast increase in efficiency.

I am, etc.
AMATEUR

[In taking the pre-grouping railways to task for failing to extend locomotive exchanges, our correspondent himself supplies the reason in the meagre results which were forthcoming. A comparison between two such inefficient types as the N.B.R. "Atlantic," and L.N.W.R. "Experiment" could not be expected to produce much of benefit to either company. Even when the latter engine was exchanged with a G.W.R. "Star," the lessons to be learned from the more efficient machine, namely, the value of high pressure and long lap valve gear, were quite lost on the L.N.W.R. when it produced its 4-cyl. "Claughton." In those days of sturdy individualism it was difficult to convince one C.M.E. of the value of another's practice, even if demonstrated on his own line.

Since the grouping, extensive trials, usually unpublished, have taken place between the engines of the constituent companies within each group, with results to be seen in the survival of the fittest. As between the groups, it is no secret that the running of the G.W.R. "Castle" over the L.M.S.R. in 1926, had a powerful influence on the inception of the "Royal Scot" design, and the G.W.R.-L.N.E.R. exchange is famous. The interchange of ideas among the C.M.Es. of today is well exemplified by the similarity in basic principle and level of performance between the modern locomotives on each group. The operation of L.M.S.R. Ministry of Supply austerity, and American 2-8-0 engines over most of the British main lines will provide valuable design data, and the opportunity is not being missed.

Our correspondent must bear in mind that exact comparative testing by dynamometer car or test plant is out of the question today due to shortage of technical staff. When such testing is resumed after the war, the accumulation of results may well lend itself to statistical analysis in some such manner as he suggests.—ED. *R.G.*]

Regulation of Railways, 1844

10-12, Copthall Avenue,
E.C.2. June 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The importance of this Act as a charter for railway stockholders is discussed by you on page 552 of your issue of June 4. It is interesting to recall that in March, 1919, when the post-war legislation for return of the railways was being contemplated, a threat to the principle of the Act brought forth from the City of London the strongest protest that has ever been presented to the Government. It was made, not by the railway companies, but by the clearing bankers, private bankers, insurance companies, and the stock exchange, and it alleged, in the course of the memorial to the Chancellor of the Exchequer, that "any attempt to tear up the treaty which this Act constituted between the State and the railway shareholder would be regarded as a repudiation of national credit." The protest was addressed to Mr. Austen Chamberlain, as Chancellor of the

Exchequer, and it was sent with an enclosing letter signed by Mr. R. Holland-Martin, then Secretary of the Bankers Clearing House, who is now the Chairman of the Southern Railway. In the course of his letter he wrote:—

> "It became known in the City that the Government had introduced a Bill purporting to invest the Minister of Ways & Communications now proposed to be established, with power to acquire any railway undertaking upon terms which appear to ignore the redeemable rights of railway shareholders as established by the existing statute law, in reliance upon which rights the railway capital has from time to time been subscribed."

The date of Mr. Holland-Martin's letter was March 31, 1919. The Chancellor of the Exchequer's reply sent on April 7, 1919, stated that "it has been decided to drop that part of the Bill which proposed to give power to acquire railway undertakings by Order in Council . . ." The official letter concluded with the statement "In these circumstances the fears entertained by the Memorialists do not appear to arise under the present Bill."

I should like to point out that this protest was lodged nearly *75 years after the original Act was passed*, and that it was inspired not merely by a desire to protect the rights of railway stockholders, but the national credit. No attempt has since been made to vary the provisions of the 1844 Act, and I venture to suggest that if any further attempt were made, without previous negotiation, to challenge the provisions of that Act, it would call forth an equally emphatic protest, and in all probability an equally prompt response.

Yours faithfully,
W. J. STEVENS

Charles Dickens and Signal Lights

105, Wellmeadow Road,
Catford, S.E.6. May 28

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The words of Dickens quoted by Mr. W. Grantham in your issue of May 28 appear in every edition of the novelist's works I have seen and many times have been the subject of comment. The most probable explanation of the matter is, I think, as follows: Dickens began to write "Our Mutual Friend" in 1863. There was not much block working in this country then and the time-interval system was widely used. Under this system the station signals—frequently only one arm for each direction mounted on a common post—stood normally off, as they also often did in the early years of block working. The arm for the direction concerned was put to danger directly a train arrived, to afford it some protection while waiting, and was kept so for a prescribed interval after its departure, long enough to permit of the train getting a safe distance ahead, or of the crew protecting it if it could not do so. I believe it was often the practice of station staffs to put a signal to danger a short while before a train actually ran in, to serve as a warning to stragglers; the driver, of course, had sighted it in the off position, which was considered as sufficient for him. It appears to me likely that this is what Dickens had seen, although his words do not convey the idea—one now foreign to our methods of working—very clearly. The putting to danger of the time interval signal allowed the lady—the "boofer lady," Johnny called her—to pass farther on in safety protected for a certain interval.

I am under the impression that on some lines it was the duty of the train crews to see that station staffs duly protected them by the time interval signals as they passed and putting signals to danger in sight of the drivers may have been done purposely, to give them this assurance. Such a practice was certainly adopted with early automatic signalling installations in America; drivers were required to stop if a signal did not return to danger as they neared it—really a form of what we now know as proving. Dickens was, of course, a very observant man, and it appears to me unlikely that he ever imagined red to be a safety signal, in the sense in which we should now employ that term. He had noticed the form of construction adopted for the early semaphore signals and likened them to wooden razors shaving the air. He describes a junction which was alternately in a state of lethargy or madness, where the signalman was constantly going through the motion of drawing large quantities of beer! After a quiet period there would be an awkward shave of the air from a wooden razor and everything would change. There are, as Mr. Grantham says, many references to railways in Dickens's works. In "A Flight," a short sketch describing a journey to Paris by the South Eastern and Nord lines, he speaks of "single" and "double barrelled" stations. Does this mean stations with the platforms opposite to each other and stations with them staggered? Perhaps Mr. Grantham can give an explanation of these terms?

Yours faithfully,
T. S. LASCELLES

Publications Received

The British Colonial Empire. By Noel Sabine. London: William Collins, Sons & Co. Ltd., 10-12, Bow Street, W.C.2. 9 in. × 6½ in. 48 pages + 8 plates in colour. Price 4s. 6d. net.—As a member of the Administrative service in Kenya, the author has had personal experience of the British Colonial system; he is now working in the Colonial Office. Mr. Noel Sabine thus is able to set his practical experience against the general background and pattern of British Colonial affairs in preparing this addition to the series of little volumes entitled "Britain in Pictures." The illustrations are the main feature of the work, and they number 25 in black and white, in addition to the 8 admirable plates in colour. The accompanying text, however, is by no means insignificant, and Mr. Sabine has written a straightforward miniature account of the British Colonial Empire, and given a vivid impression of the vast diversity of peoples, climates, and countries in this unique association. He makes no attempt to minimise the problems inevitable in governing such a widespread Empire, but stresses the need for more general understanding of the great achievements of the past, and the reality of the living political association of today (*see editorial note, page* 601).

Glossary of Terms used in Electrical Engineering.—London: British Standards Institution, 28, Victoria Street, S.W.1. 8½ in. × 5½ in. Price 2s. net, each part.—Parts 2, 3, and 4 of this work have been issued recently. Part 2 contains section 2 of the glossary, dealing with machines and transformers. Part 3 contains section 3 (switchgear and control gear), and section 4 (metres and measuring instruments). Part 4 consists of section 5 of the glossary, covering terms used in transmission and distribution. The object of preparing this glossary, it may be recalled, has been to standardise and to co-ordinate the technical terms used in electrical science and industry. In present conditions it has not been found practicable to publish the glossary as a complete volume; hence the issue of separate parts. There are still four more parts to appear, of which the last will consist of an alphabetical index to all the sections.

The Louisville & Nashville Railroad, 1850-1942. By Kincaid A. Herr. Louisville, Kentucky: The *L. & N. Magazine*. 11½ in. × 8½ in. 222 pages + folding coloured map. Price $1 net.—Five years ago the Editor of the *L. & N. Magazine* arranged for the preparation of a history of the Louisville & Nashville Railroad with the intention of publishing it serially. Beginning with the January, 1939, issue, it appeared for 43 months. It was realised from the first that there might be a demand for the series of articles in book form, and accordingly the type and illustrations were saved. The present volume is the finished work, and because of the way in which the material was first published, it adopts the three-column style of type page instead of a more orthodox presentation. We read the series of articles as they appeared with considerable interest, and quite early we ourselves suggested their production in more permanent form as a volume, a course which we are happy to say has now proved practicable. This railway has had a fascinating story, and it is representative of the spirit of the South. Among many features, particular attention may be directed to the interest in its gauge conversion. For more than ninety years the company has been a citizen of the Southern States, and its lines extend into thirteen of them. Its aid in helping to develop the natural resources of the territory it serves provides an inspiring story. Throughout its corporate existence the L. & N. has always been able to weather the financial storms; it has not changed its corporate name; and it is one of the few railways in the U.S.A. which has never been in receivership. In addition to the general history, there are supplementary chapters dealing with the present war up to the end of 1942, and appendices describing the company's rolling stock, services, sleeping cars, motive power, and track. There are two good indexes, one general, and the other of illustrations. Altogether, the volume is an excellent example of domestic history.

Prospects and Policies. By the Rt. Hon. Herbert Morrison, M.P., University Press, Cambridge. 4¾ in. × 7½ in. 45 pp. Price 6d. net.—This pamphlet contains five speeches on post-war subjects, which Mr. Herbert Morrison has delivered during the last few months. The subjects of the speeches are respectively:—Social and Economic Policy; the British Commonwealth; the Future of Exports; World Politics; and the State and Industry. Some aspects of the subjects are the subject of an editorial article on page 603.

XUM

The Scrap Heap

THE FOURTH ARM

If you direct Railways,
Keeping Ministries right,
From not " ten to four,"
But by day and by night—
And have the good fortune
To be a " High Hat "
In Goods or in Passenger
Don't forget that
The Treasury has nothing whatever to spare
For the man who gets more than £500 a year.

When Powers dole out
The Honours " degrees "
Knighthoods (or simply
The Plain " O.B.Es ")
You'll surely come after—
It makes one's blood boil—
The " Assistant Director
for Cod Liver Oil "
The " honours purveyors " they simply can't bear
Railway " brains " rated o'er £500 a year.

We keep Civil Servants—
" In credit " with " Town "
Who make bloomers " up country "—
We don't let them down—
Yet when credit is given
There's a fact without doubt,
It's the service that's " in "
And the Railways are " out."
The " Director of Fish Glue " is possibly " There,"
But no Rail-road man o'er £500 a year.

We've blokes who come down
From " Office of Works "
But most of their plans
Are primitive " Quirks " ;
But thanks to the guts
Of Rail Engineers,
We save these O'Ws
From scoffing and jeers,
But still there is never a cent for to spare
If the " D.E." gets more than £500 a year.

Still we keep on working—
We know that we must—
Or endless of " Ministries "
Would promptly go " bust."
For when they're in trouble
The first thing they do
Is to fly with their problems
To poor blokes who
Pull them out of the mess whilst they sit in the chair
Of the Railway Official o'er £500 a year.

Someday and somewhere
A man will arise
Who'll realise at last
With wide open eyes,
That Railway Officials
In " Goods, Pass or Ops,"
O'er most Civil Servants
Are really " the tops."
Then honours and " brass " and a deal that is " square "
Will be granted to some o'er £500 a year.

E. G. G.

* * *

DIFFERENT TRAINS OF THOUGHT

The delivery of the first of a series of Lend-Lease locomotives, built in America for use in England, was the occasion for ceremony. Because the locomotive was stripped of all but essential parts the British, with typical reserve, named it the "Austerity." For the same reason the American workmen at Schenectady, where it was built, had called it the " Gypsy Rose Lee."—*From " Life."*

[Gypsy Rose Lee is one of the leading U.S.A. exponents of the art of " strip-tease."]

* * *

GERMAN HUMOUR

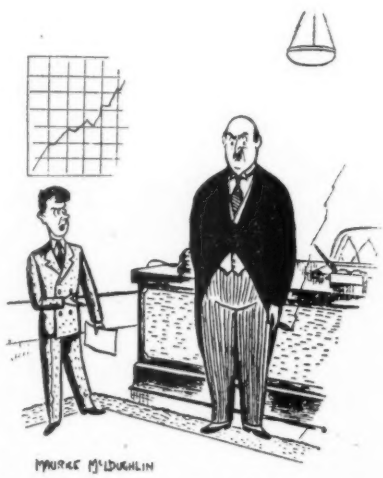
According to the *National News Letter* no particular German hatred against the British exists. This is explained by the fact that the masses feel that they are merely harvesting what they have sown. The names of Warsaw, Rotterdam, Coventry, and Stalingrad are only too well remembered by the Germans for Goebbels to succeed in convincing them that the British started aerial warfare, and his propaganda merely calls forth a shrug of the shoulder . . .

German wartime humour indicates the same thing. When describing the tremendous blasting power of British bombs, it is said that it was so great during the raid that for hours afterwards pictures of Hitler were still flying out of windows!

* * *

RAILWAY TERMS

Mr. Churchill's recent mention of a concession to American custom in calling lorries " trucks " suggests that there are quite a number of other differences of this kind, especially where railways are concerned, which is curious, perhaps, when we remember that it was in this country that railways and everything to do with them originated. Sometimes, it is true, Americans have been the more consistent, for we began, as the Americans have continued, to talk of railroads. But what we call sleepers the Americans call ties and what we call stations the Americans call depots. We never talk about " the cars " except in relation to such things as the dining and sleeping car, and the man who drives the train and the man in charge of it have different titles in the two countries. But then railwaymen and the general public in this country often use different terms. The layman talks of trucks and the railwayman talks of wagons ; the layman speaks of engines when the railwayman refers to locomotives ; the layman talks of carriages when the railwayman talks of coaches. Some people to this day speak of luggage trains instead of goods trains.—*From the " Manchester Guardian."*



" Well, if you're dining with the President of the Board of Trade, the Chairman will have to take No. 3 on the stirrup-pump"

[Reproduced by permission of the proprietors of " Punch "

Mr. Ashton Davies, Vice-President, L.M.S.R., inspecting a record paper scrap heap

Since the commencement of the L.M.S.R. salvage compaign 1,000 tons of waste paper and cartons have been recovered from Euston Station alone. The total fo rthe line is over 12,000 tons.

* * *

WAS THE JOURNEY REALLY NECESSARY ?

Two witnesses for the prosecution in a case at Middlesex Sessions recently had travelled from Newcastle-on-Tyne to give evidence which consisted of a few sentences, and lasted for about a minute altogether. Mr. G. D. Roberts (defending) said that he had no questions to ask them, and added : " It seems a wicked waste of time and money."—*From " The Times."*

* * *

Plans are being prepared for the establishment of " victory " vegetable gardens alongside lines and in station grounds on the Canadian National Railways. Mr. N. B. Walton, Executive Vice-President of the system, has issued a letter to the vice-presidents and general managers in charge of the five operational regions asking them to encourage such a movement and to facilitate the allotment of land suitable for cultivation to employees who will undertake to plant vegetable plots.

* * *

A bore is a talker whose delight is to illustrate the obvious and expatiate the evident.

* * *

TAILPIECE

" UBIQUE "

(*Army railway construction and operation is an important function of the Royal Engineers*)

The Sapper does reconnaissance and gets the ground surveyed,
Prepares the right formation on which the track is laid,
Then lays the track and ballasts it, however far it goes.
The Sapper is ubiquitous, as everybody knows.

He takes delight in bridges to build and to repair,
His motto, " Any railway, any time and anywhere."
He works with due authority the traffic as it flows.
The Sapper is ubiquitous, as everybody knows.

E. C.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

CANADA

Locomotives for India

Work has been started on the construction of locomotives for India by the Canadian Locomotive Company. The total number to be built is 145, of which the Canadian Locomotive Company of Kingston will supply 75, and the Montreal Locomotive Company the remainder The first engine is expected to be completed by about August next, with final delivery by May, 1944. Priorities for steel have been arranged, with the active co-operation, it is understood, of the United States Government. Reports indicate that the locomotives are to be of a special design, lighter than the usual Canadian goods engines.

The work promises to guarantee the Canadian Locomotive Company a volume of business for the balance of 1943 and well into 1944 which will establish a new record, exceeding that of 1942, when, as the report, just issued, states, "total sales were the highest in its history." The net profit for the latter year amounted to $168,759, equal to $4·23 a share (compared with $155·494, or $3·89 a share for 1941), after providing for higher taxes ($785,000, less $102,000 refundable); depreciation at $119,504 (against $118,819); bond interest to July 31, 1942, $125,376; and allocation to contingency reserve of $75,000. The President, Mr. W. Casey, states that, although only 36 locomotives were delivered, nearly one-half of plant facilities were engaged on armament and similar work, besides a large amount of sub-contract work for other companies. The volume of orders on hand at the beginning of 1943, and received up to the date of the report, covers 102 locomotives, as well as armament and other war orders.

UNITED STATES

New York Central 1942 Report

The annual report of the Ne York Central System for 1942 shows that that company, in common with the majority of American railways, had a record year. Gross operating revenue was $593,666,096, an increase of 32·6 per cent. over 1941. Net income was $49,082,183, equivalent to $7.61 on every share. Passenger traffic, as represented in passenger-miles, increased by 55·5 per cent., and freight traffic, in ton-miles, by 36·1 per cent., over 1941. At the end of 1942 the staff employed on the N.Y.C. had increased to 114,383, a total greater by 8,371 than that at the end of 1941. Over 14,650 New York Central men are serving in the American Armed Forces.

The "Katy" Turns the Corner

An unenviable record established by the Missouri-Kansas-Texas Railroad, generally known as the "Katy Lines," of working at a loss for eleven years in succession, came to an end in 1942. As compared with a deficit of $645,525 in 1941, the M.-K.-T.R. showed a net profit of $5,880,546 on its operation last year.

More Pullman Records

Pullman records are still being broken. Including both civilian and military traffic, approximately two billion passenger-miles were travelled in Pullman cars during the month of January, 1943, or 57 per cent. more than in the corresponding month of 1942. For the whole year, 1942, total Pullman passenger-miles exceeded 19 billion far exceeding the previous record, achieved in 1926, of 14·4 billion; and there is no doubt that the 1943 totals will be higher still. In addition to heavy troop movements, civilian requirements have increased sharply.

BRAZIL

New Leopoldina Railway Coaches

The rationing of petrol has had the effect of increasing congestion during rush hours on the already-overcrowded suburban trains of the Leopoldina Railway between Barão de Mauá and Caxias, and efforts have had to be made to cope with this extra traffic. Some time ago longitudinal seating was adopted for second class coaches, and as this proved satisfactory, it has been installed for the use of first class passengers.

The new first class coaches have seating accommodation for forty-two persons on curved wooden seats, and standing accommodation, with a corresponding number of straphangers, for twenty-five. In practice, however, during the rush hours, the latter is exceeded considerably, as all available interior space, and every platform, step, buffer, and ledge is taken with great risk to the passengers.

Left: Interior of one of the new first class coaches placed in service on the Leopoldina Railway. Right: One of the second class coaches which have been in traffic for some time

ARGENTINA

Extended Tourist Facilities

In accordance with recommendations made recently by the National Tourist Congress, the Argentine Government has issued a Decree simplifying the formalities to be observed by tourists from other South American countries visiting Argentina. In future, consular fees for *visas* required by citizens of other republics will be abolished; the regulations for entry have been simplified; and the duration of the tourist's stay has been extended from three to six months, with the right to have this period extended, if desired, for a further six months. The retention of tourists' passports by the immigration authorities has been abolished, and tourists will be provided with a tourist's *cèdula* in triplicate, giving particulars of age, profession, nationality, and other details. This will be handed to the immigration authorities, who will forward the duplicate to the police, and the triplicate to the National Tourist Board; the tourist will be allowed to retain possession of his passport and other identification papers. These tourists' *cèdulas* will give the right to a reduction in State Railways fares, hotel charges, and fares for bus tours.

Goods Traffic in 1942

According to statistics compiled by the Instituto de Estudios Econòmicos del Transporte, the total freight transported by the foreign-owned Argentine railways during the calendar year 1942 (as distinct from the financial year July 1-June 30) amounted to 11,581,000,000 ton-km. This is the highest figure recorded under this head during the last 13 years, and compares with the 1929 total of 11,240,000,000 ton-km. The corresponding figure for 1941 was 10,606,000,000 ton-km., and that of the last pre-war year (1938), 8,701,000,000 ton-km. The following table, published by *Revista de Economia Argentina*, shows, in millions of ton-km., the variations in the volume of freight recorded month by month during the last four years :—

Month	1939	1940	1941	1942
January ...	811	815	756	895
February ...	765	788	785	816
March ...	886	813	930	919
April	883	836	913	956
May	896	764	975	870
June	849	682	919	930
July	823	763	915	993
August ...	836	749	890	953
September ...	806	669	957	1,046
October ...	736	687	905	1,069
November ...	805	699	782	1,046
December ...	778	689	876	1,080

The following table, also published by *Revista de Economia Argentina*, shows, in millions of ton-km., the volume of freight handled by the foreign-owned Argentine railways each year from 1929 to 1942, inclusive :—

Years	Yearly total	Monthly average
1929	11,240	937
1930	8,900	742
1931	9,475	790
1932	8,429	702
1933	7,919	660
1934	8,706	725
1935	9,136	761
1936	9,410	784
1937	10,202	850
1938	8,701	725
1939	9,874	823
1940	8,954	746
1941	10,606	884
1942	11,581	965

XUM

Possibilities of Tourist Travel after the War

By Shirley James,

*Passenger Manager, Pickfords Limited Travel Agency**

THE possibilities of travel after the war will be better illustrated if I classify my subject under the following headings: Holidays in Great Britain; Continental travel by rail, boat or road; travel overseas; air travel.

Holidays in Great Britain

These offer, without doubt, the only form of holiday that people will be able to indulge in for a considerable time after the war. It is certain that at the very first opportunity there will be an unprecedented rush to the seaside and country by the hundreds of thousands who have had to forgo these pleasures during the past four years. Doubtless the transport companies, with their release from war work, will be well able to look after the carrying of so many thousands of travellers. The great handicap to such movements will be the amount of accommodation available at the different resorts. Many hotels are in the hands of the Government, and they will take a great deal of reconditioning before being ready to accept guests again. Many others have been damaged or destroyed by enemy action. There is no doubt that the large majority of people who wish to go away will have to be accommodated in boarding houses, apartments in private houses, and holiday camps. It is true that many of the latter are also in Government hands, but I am of the opinion that they can be made ready with more speed than other places. In any event, the total amount of space available will be very limited, and holidays will have to be spread over many months, if a large number of holiday makers is to get away. I believe it would be most helpful if an organisation could be established to collect daily information showing which resorts have available accommodation. No new machinery is necessary for this purpose—a small committee of the existing tourist agencies could, in conjunction with the transport companies, easily carry out such a suggestion.

Continental Travel by Road, Rail, or Boat

In my opinion, it will take at least three years after the cessation of hostilities before we can reach a position similar to that which prevailed in 1938-1939. The main factor that will govern this question is the lack of food. It will take at least two, probably three, harvest seasons before there will be enough food on the Continent to enable holiday makers to be fed. The whole question as to resumption of holiday traffic depends entirely on food supplies. While waiting for these to reach normal once again, there will be much to do as to the replacement of rolling stock, the reconditioning of permanent ways, and the general repair of bomb damage. Harbour works will have to be made good, and further new Channel boats provided.

Neutral Switzerland and Sweden must suffer with the other countries, with the possible exception that their food position may be somewhat better, and perhaps they could cater for a limited number of visitors travelling by plane, or by plane or boat in the case of Sweden, that country providing the vessels necessary for such traffic. While I am on the subject of Continental traffic, I would like to mention that many changes may take place in the organisation of it.

The example set by Russia before the war, by the establishment of its Intourist concern, may be copied by other European countries. The M.E.R. of Germany and the C.I.T. of Italy before the war had arrangements bordering on the Russian plan. It would not surprise me in the least to see all the Continental countries, with the possible exception of Switzerland, start their own Government travel organisations, making it imperative that all the travellers be handled through these organisations, and through no other. These concerns would work in conjunction with the State-owned railways and transport, hotels, etc. Such a move would revolutionise, and would have a most serious effect on, inclusive tour business from this country and from the United States. The elimination of competition might not be to the passengers' advantage.

Travel Overseas

This form of travel means steamships, and we can well imagine the great shortage there will be of passenger liners at the end of the war. Those that are available will be required for repatriation of the millions of soldiers from and to all parts of the world. When this has been done and before they can be put into the passenger trade, these ships will have to be reconditioned and in most cases entirely refitted. Many of the big liners that have lost their furnishings and fittings by *Blitz* ashore, may take as long as twelve months to re-equip. Nowadays, ships are built quickly and there is no doubt at all that, as vessels become available, travel overseas will be more popular even than it was before the war. I can imagine that the holiday traffic from and to the U.S.A. and Canada alone, will set new records for all classes. The Mediterranean too, will appeal to a new traffic.

Air Travel

This means of transport should be available a long time before the steamships are ready. It appears to offer the only way to reach the Continent and overseas for some time to come. It is difficult to forecast the services that will be available or what our Government's attitude is going to be as to the building of air liners in the not too distant future, and the establishment of aerodromes, etc., necessary to such services. It is certain that the U.S.A. will be quickly off the mark, with a daily service from that Continent to ours—possibly several machines daily. It will also immediately resume its Pacific services and reinforce the existing departures to South American countries.

It is to be hoped that the British Overseas Airways Corporation will not lag behind. With all other means of transport severely handicapped, the airways have a wonderful field open to them. At first maybe, this form of travel will be limited to passengers engaged on business, but with the rapid addition of machines which we can expect, it should not be long before all those who can afford the fares will be able to travel, as soon as food conditions improve. The demand for air travel to all parts of the Continent of Europe will be great indeed.

From these few remarks it would appear that:—

1. The resumption of normal travel will take about three years after the cessation of hostilities in Europe.
2. Holidays in Great Britain will be the only ones available for a long time.
3. Business travel may be allowed by air services very soon after the war.
4. Eventually there will be greater numbers travelling by air than ever before from and to the U.S.A., Canada, etc.
5. Air transport will become a vast form of travel all over the world, with a very long start on other methods.
6. Travel on the Continent of Europe may become completely reorganised and restricted to State control.

All that I have said is purely my personal opinion, and many things may happen to prove my forecasts and present thoughts incorrect. Restriction of the export of money would have a serious effect on foreign travel, and if such a contingency arose, would delay still further a return to normal conditions.

* A talk recently given at the Skal Club in Birmingham

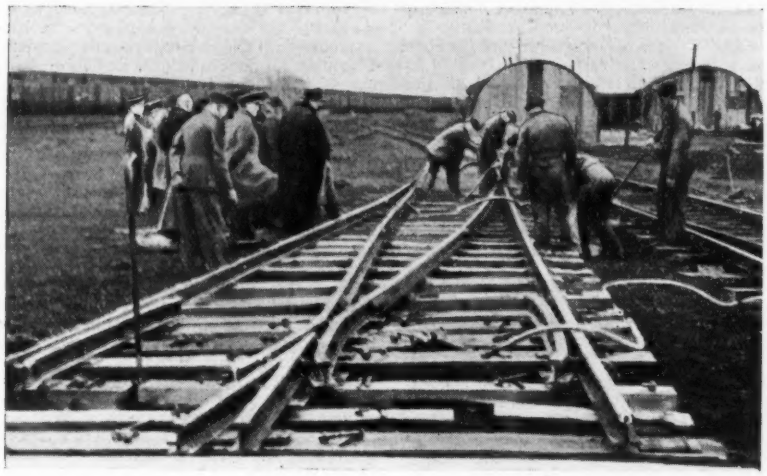
PERUVIAN RAILWAY DIFFICULTIES.—According to information given in *The Board of Trade Journal*, there is an acute shortage of rolling stock and other equipment on the Central of Peru Railway. The low exchange value and increasing costs of labour and materials have affected adversely the Guaqui-La Paz Railway. Both these companies are owned by the Peruvian Corporation Limited; the Guaqui-La Paz system is operated under supervision of the Southern Railway of Peru, also owned by the corporation.

SWISS MODEL RAILWAY EXHIBITION.—The second Swiss model railway exhibition was held in the Berne Municipal High School from April 11 to 25, under the auspices of the Swiss Model Railway Club, the Zurich Railway Society, and certain other associations. About 350 models, worth some fr. 100,000, were shown; the smallest was only 2 in. long; and the longest—a model of a bridge—about 7 ft. The heaviest exhibit, a steam locomotive, weighed 880 lb. The exhibition included models of every type of railway equipment.

PUBLIC RELATIONS AND BRITISH BUSES.—A further series of local advertisements has been prepared by the British Omnibus Companies Public Relations Committee and made available for the use of the member companies. The Committee, in addition to maintaining a regular advertising campaign in the big national and semi-national newspapers, as well as a large number of local papers, also provides, as part of its service to members, stereos of advertisements for insertion by operators in their local newspapers as part of their own advertising campaign. Large numbers of the members are now making use of this facility. In several districts the neighbouring companies have arranged between themselves to issue a series of these local advertisements jointly, thus covering the ground with the least possible overlapping, and in some cases advertisements appear with the name of two, three, or even more companies; joint arrangements of this kind are in force in South Wales, South Yorkshire, Lancashire, Notts & Derby, and in the South East. The committee by no means restricts itself to the work of one artist, or to the provision of only one type of advertisement; the present series includes the work of Douglas (of *Punch*), Fitton, and Boast. All 18 advertisements in the new series have one thing in common, namely, the humorous approach, which in these serious days is the method deemed to accord with the public interest.

Army Railway Construction and Operation

The work of the Railway Survey, Mechanical Equipment, Construction, Operating, and Bridging Companies of the Royal Engineers



Laying a turnout. Note piping supplying compressed air for tools for drilling holes in sleepers and driving in screw spikes

RECENTLY the War Office granted facilities and made all necessary arrangements for a party of press representatives to inspect railway construction as carried out at two army stores depots, and the railway operation thereof. During the evening before the depots were visited three officers of the Transportation Service (Lt.-Colonels J. Blundell, C. P. Parker, M.C., and F. H. Petty) gave full and interesting particulars of that service and such of its units as were concerned with the depots to be inspected. Later an outline was given of the procedure which leads up to the selection of the final site for a depot.

The Transportation Service is part of the Corps of Royal Engineers, and all its units are trained to carry out their duties as fighting formations, as well as to perform the technical work for which respectively they are designed. The Royal Engineer units which are required for the construction and operation of stores depots are Railway Survey, Mechanical Equipment (Transportation), Railway Construction, and Railway Operating Companies. Sometimes the assistance of a Railway Bridging Company is necessary. The installation and maintenance of telephones and electrical signalling equipment required for the safe working of the railway is carried out by Railway Telegraph Companies of the Royal Corps of Signals.

Military Railway Units

A Railway Survey Company carries out reconnaissance, and preliminary and location surveys; prepares maps and plans, which nearly always are contoured, and profiles of the longitudinal section; and repegs the alignment and provides fresh levels as required during the progress of the work.

A Mechanical Equipment Company prepares the "formation" upon which the track will be laid. For this purpose it is provided with a variety of mechanical gear which is adapted specially for the excavation and removal of large quantities of earth in a minimum of time, combined with great economy of manpower. Some of its machines are equipped for the digging of drainage ditches, others for the removal of trees, hedges, and obstructions generally (including light brickwork). Most of this equipment is of American manufacture, and has become available for Army use only during the present war.

A Railway Construction Company builds bridges and culverts; lays pipe-drains where necessary, and completes the open drains; lays and ballasts the track on the formation prepared by the last-mentioned unit; and carries out the maintenance of these items after the depot has been completed. In addition, it is often called on to construct engine pits, coaling stages, and watering points for the locomotives of the operating companies. It contains all the skilled tradesmen required for this work, and is assisted by units of the Pioneer Corps and other so-called unskilled labour (the latter, if retained on this class of work for any considerable period, become so handy at it that really they should be described as skilled labour; their assistance has been invaluable, and has contributed in no small degree to the quantity of work which the technical units have been able to complete).

A Railway Operating Company works all the rail traffic in the depot when it is taken into normal use, and carries out all maintenance and running repairs to its own locomotives and the rolling stock stationed at the depot. In addition, it runs all ballast and material trains during track-laying. It also deals with any material for the R.E. Works Service which it is found expedient to bring in by rail.

A Railway Bridging Company is a specialised unit highly trained in bridge erection and repair; and it is with its skilled advice and help that any heavy or difficult bridge programmes are carried out.

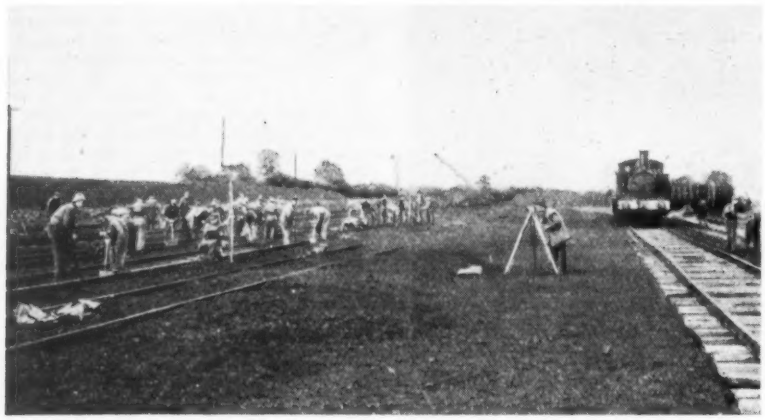
These and a few other kinds of units of the Transportation Service, of which there are now large numbers, have been created by a gradual expansion from peacetime establishment of two Regular, and eight Supplementary Reserve, companies. A great many of the officers and other ranks have been transferred from time to time to units which were being formed, to provide a trained nucleus. For quite a long time very few of the recruits to this service have been former railway employees, with the result that an enormous amount of technical training has had to be carried out at the Transportation (formerly Railway) Training Centres.

When in Great Britain, all Transportation Units are directly under War Office control. To facilitate administration and technical work, a Railway Construction Group consists of two or more companies under a Lt.-Colonel, who is designated R.C.E. (Railway Construction Engineer). Similarly, a Railway Operating Group consists of two or more operating companies under a Lt.-Colonel. Railway Survey and Mechanical Equipment (Tn) Companies, or portions thereof, are allotted to the R.C.E. in accordance with their availability and the magnitude of the works in hand. Although the greater portion of the work of the various units has been done specifically to meet Army requirements, some assistance has been given to civil staff of the British railway companies in repairing bomb damage, and in the safe working of trains afterwards. Assistance has been given also with the construction on the civil railways necessitated by the change-over of traffic from peacetime to wartime routes. Their normal work, however, has been the construction and operation of depots which varied in size from one which was merely the addition of a siding at an existing station to one requiring over fifty miles of railway track and needing sixteen engines to operate it. Mention must be made also of the Royal Engineer Works Service, which, in a depot, builds the store sheds and all accommodation for personnel; constructs roads; provides the supply of electricity and water, including the permanent supply of locomotives; and instals the necessary sanitary drainage.

Layout and Train Control

Certain features are more or less standardised for all depots regardless of size. A set of sidings is required for the exchange of traffic in both directions with the main-line railway. Another necessity is a small locomotive depot, consisting of a shed with an inspection pit, a store, a work bench, and a power pump to "boost" water pressure in the mains for washing-out purposes; a water column; an ash pit; a coal stage; and a short siding for rolling-stock repairs. A set of sidings for sorting and marshalling is needed; this is referred to conveniently as a "triage," after the French custom. For convenience of operation the depot is divided into sections, each of which is served by a long open loop on which trains run in one direction only (these loops are referred to as main lines as far as the depot is concerned). Loops of the various contiguous sections will branch off from one another, and in many places share a common piece of main line. But the basic principle of unidirectional traffic is maintained. It will be realised that considerable ingenuity is necessary in planning the general layout to retain this condition. One great benefit resulting from this system is that engines can always pull their trains, and that the sidings serving sheds and stacking areas need be dead ends only, which can be worked without the engine having to run round its train. Thus is avoided the construction of the loop which otherwise would have been necessary for running-round purposes, as well as the operating time which would be taken up in doing so. By arranging suit-

able control points on the main lines, between adjacent pairs of which only one engine is allowed to have occupation at a time, reasonable security is possible. Each control point is connected by telephone to a central office, at the triage, which is in charge of a regulator (so named to distinguish him from the controller of ordinary main-line train control). On a suitable diagram the regulator shows the position of every engine in the depot. At each control point there is a notice board for each approach line which forbids an engine to pass into the next section without permission from the regulator. In some cases, there is a control point at a place giving access to a set of sidings in which work can be carried out without fouling the main line; in such cases the clearing of the main line must be reported and permission must be obtained before coming out again. The regulator keeps a register in which he enters the times at which permission to pass a control point is asked for, the times at which such permission is given, and the times at which the main line is cleared at any set of sidings.



Lifting and packing. Surveyor is giving new levels for final surface

Choice of Depot Site

The need for a depot will have been put up by the service which holds and issues a particular class of stores. If the need for the depot is accepted, the War Office selects an area in which a reconnaissance for a site is to be undertaken. Some of the points which would be considered in making this selection are the origin of the stores, their final destination, the state of traffic on the main railway lines, the nature of the ground, and the liability to air attack. Below is given a list of units or departments, representatives of whom should attend the reconnaissance, and some of the points which would influence their views of the matter :—

The using service.—Sufficient dispersion to minimise the effect of air attack. There are rigid storage rules for ammunition; steelwork is one of the materials requiring least dispersion. Ordinary inflammable materials occupy an intermediate position. The shape of the ground may enforce greater dispersion than would otherwise be necessary; it should be remembered, however, that needless dispersion increases the difficulties of administration and depot working. Road access may be necessary for local issues and is needed for unit maintenance and for the convenience of the personnel.

Railway Construction, with Railway Survey.—The desirable qualities are easily-handled soil; sufficient general slope to give good drainage without making operating gradients excessive; and absence of heavy earthwork. The existence of woods and hedges on parts of the ground not being used may be a distinct advantage from the air point of view. Availability of water for locomotives during the construction period is also an important consideration.

Railway Operating.—The main consideration is the absence of steep gradients.

The civil railway.—Capability of the local line to handle the extra traffic created by the depot; availability of a suitable station at which the depot connection can be made, or a suitable place between stations for this purpose (although the exchange sidings should be near the main line (civil), the depot triage and the depot itself may be some distance away, provided adequate operating arrangements are made).

R.E. Works Service.—Availability of local building materials and road access to the site. Water and electricity supplies. Suitability of the ground for the installation of sanitary drainage.

Movement Control.—This is in effect the traffic agent of the Army, and makes all arrangements for the movement of personnel and stores; it will be interested in this work, although it may not wish to have a representative on the spot. In view of the fact that it will be concerned in the operation of the depot, it should be kept informed of progress and given an opportunity to make comments.

It will probably be necessary during the reconnaissance to examine several sites. The best of these still may be a compromise between conflicting interests, as it is unlikely that a situation will be found which satisfies everyone. If the selected site is approved by the War Office, a preliminary survey is made by the Survey Company. On the resulting map the depot layout is planned. This may be done at the War Office, or it may be delegated to the local R.C.E. When the final layout is approved by all concerned, the Survey Company pegs it out on the ground, commencing with the exchange sidings.

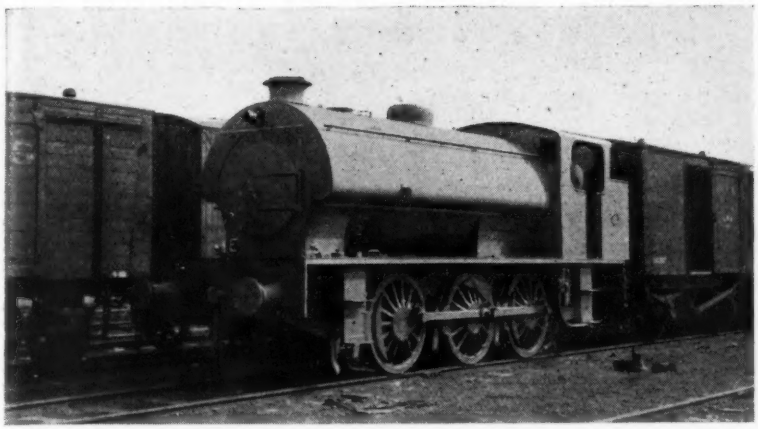
Sequence of Construction

The first work of the earthwork parties will be to prepare the formation for the exchange sidings and the triage. The Construction Company will be hard on their heels so that sufficient sidings may become available at an early date so that trains of material may be unloaded quickly after their arrival and a reasonable reserve accumulated. The exchange sidings are usually laid with the civil railway's bull-headed track. If the connections to the exchange sidings from the civil railway are in the main line they are laid practically always by the civil railway but if they are in a yard this work is often left to the Construction Company as are the exchange sidings also. The construction of bridges, culverts and drains proceeds with and slightly ahead of the earthwork. Some depots may be on clay soil which is extremely troublesome in wet weather and not very good in dry weather. If this is the case, a good layer of cinders is spread over the formation before track is laid: this has given good results and is now standard practice for this type of soil; special attention has been given to drainage, with satisfactory results after the work has settled.

The track work is so planned that complete sections can be handed over to the R.E. Works Service as early as possible to enable them to proceed with the construction of sheds and other installations. As soon as these are finished they are handed over to the using service. Triage work and the provision of operating facilities are kept well ahead of these activities, so that the taking of the depot into use is a gradual process.

The first visit was to an ammunition

Unloading rails and sleepers from small four-wheel trolleys. Note alternate use of thirds of sleepers



Austerity shunting engine. A first-class piece of work easily maintained in good condition and adjustment

depot under construction. In this type of installation safety demands considerable dispersion. Hillocks and ridges exist at the depot in question, but as they do not encroach on the main depot lines they provide additional safety without detriment to the operating features of the railway. In fact, many sites which on first sight look unpromising may turn out to be good, if the main running lines can be arranged to dodge the rough ground. The various stages of the work seen comprised the pegging-out of curves ahead of the earthwork; levelling for the final profile; giving of levels where tracklaying was in progress; culvert and drain construction; earthwork with mechanical equipment; tracklaying in the triage; and maintenance on running lines in use.

As the tracklaying was in the triage, material could be distributed from lines already installed. This was done by small four-wheel trolleys with ball-bearing journals, which were placed independently at suitable points under their loads of rails or sleepers. The rail used is the 75-lb. British Standard flat-bottom rail. It rests on cast-iron bearing plates giving the normal cant and is secured by dog spikes. In turnouts the switch stock rails, crossings, and check rails are secured by screw spikes. Williams' spring point levers are used throughout. In the triage, on plain straight track and away from the joints, full length sleepers alternate with one thirds under each rail. At six places in a 36-ft. rail, this means a saving of two sleepers every 12 yd. of track, or 293 a mile.

This depot is in two sections, the first of which is complete as far as the trackwork is concerned. Most of the work seen in progress was for an extension of about the same size, including extra triage sidings. The following gives an indication of the work in connection with the first section:—

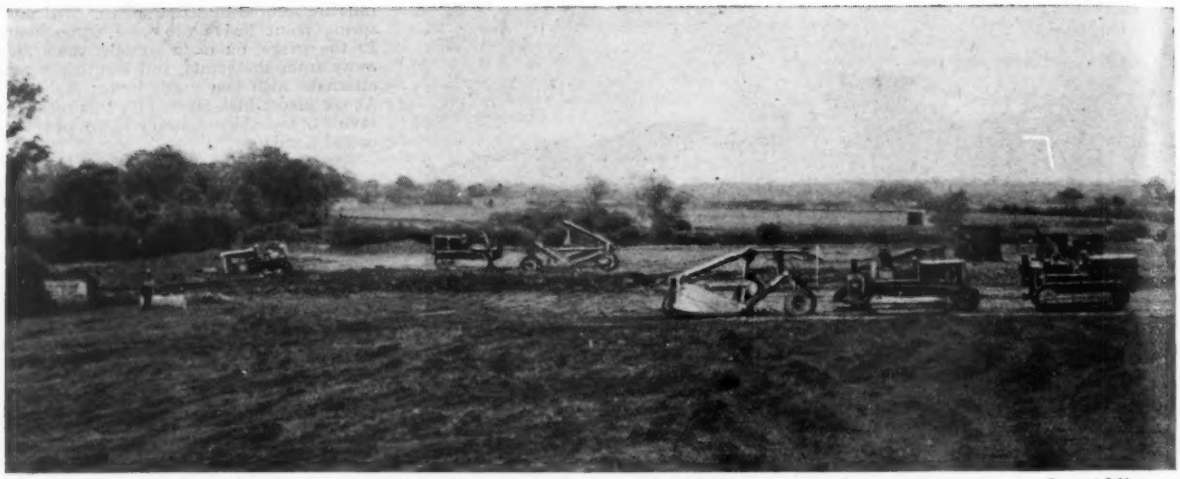
Earthwork	... ...	900,000 cu. yd.
Drains: main drains cleared		4¾ miles
pipe-drains laid	...	14½ miles
Trackwork: plain line	...	37 miles (approximately)
turnouts	...	241
spikes used	...	300,000
Cinder ballast	... ...	78,000 tons
Telephone lines	... ...	3 miles (approximately)
Plant (including scrapers, draglines, back-actors, blade-graders, auto-patrols, bulldozers, Allen Parsons trenchers, and compressors):		
Maximum number of machines	... ...	30

From the first indication that a depot was required in this area to the time when

Triage (marshalling yard) at Stores Depot which had been completed and was in operation

Above: Finishing a wet and sticky clay cutting. Forming drain on right. Excavator with dragline bucket trimming sides on left

Left: Tractor hauling out rails in wet and sticky clay cutting



Large tractor-hauled scrapers at work, loading in the foreground and dumping on the return journey in the middle distance; long double 2 ft. pipe culvert on the left

work commenced involved a period of two months only.

Typical Depot in Operation

In the afternoon a visit was made to an Engineer Stores Depot which had been in operation for a considerable period. The Operating Company provides the personnel for working the traffic in a depot from the time that construction starts. In the early stages operating conditions are not always easy; the only water available often must be taken from a stream by means of a portable pump; and there will be no engine shed, no pit, and no telephones, but even in these conditions the wagons are placed and the locomotives are maintained; and difficulties which cannot be overcome by the men on the spot are conspicuous by their absence.

The depot in question is operated under the regulator system already described. In addition, there is a safeguard concerning the use of the exchange sidings: at the entrances, of which there is one at each end, there is a notice board facing the depot which forbids any engine to pass when a red flag or light is displayed thereon. These are placed there by the civil railway staff when they wish to work in the sidings, and are removed when they have finished (occasionally the civil staff forget to remove the red indication, which leads to some friendly chaff between the two services). Shift working permits of continuous operation. The following figures give some idea of the extent of the depot and the work carried out :—

Track	31½ miles
Number of exchange sidings ...	7
Triage	8 double-ended 4 single-ended
Number of sub-depots ...	7
Number of locomotives ...	6
Staff	2 officers 150 other ranks
Average number wagons handled each week :	
Inwards and outwards ...	1,311 each way
Internal moves	641

Both the Construction Company at the ammunition depot, and the Operating Company which provides the personnel at both depots, are pre-war Supplementary Reserve units, but without many of their original officers and men, on account of the latter having been transferred to newly-formed units. Of the 41 operating staff who were on duty during the afternoon at the second depot, 35 are from civil railways, and 37 are working at their own or similar trades. Of the remaining four; a brakesman and shunter was a dustman, and the three coalmen and steamraisers were a slater, a fitter's mate, and a printer's imp.

TROLLEYBUSES IN SPAIN.—A trolleybus service in Bilbao, with single-deck vehicles holding 55 passengers, was opened on July 10, 1940. Similar vehicles were introduced at Barcelona for a service opened on October 12, 1941. In Barcelona there are also 33 double-deck trolleybuses. Operation at Bilbao is said to be more remunerative than at Barcelona, and this is stated to be a result of the uniform fare of 25 centimos for the whole line, against fares graded according to distance, ranging from 30 to 50 centimos, at Barcelona.

Aids to High-Speed Turning

ALTHOUGH they may be of comparatively recent design, many machine tools and appliances do not provide conditions that enable present-day high-speed cutting alloys to be used to full advantage. Great rigidity and ample support immediately below the cutting edge are essential but often lacking. Furthermore, the rapid rate at which the metal is removed may cause the turnings to choke and damage the tool; finally, the high speed at which the work is run may result in seizure of the rollers in the steady rests.

To overcome these difficulties and enable Ardoloy or any other high-speed cutting alloy to be used efficiently, Alfred Herbert Limited has introduced the appliance known as the "Chipstream Box Tool," which is shown in the accompanying illustration.

The Ardoloy cutting tool, with a vee groove behind the cutting edge, is carried in a robust slide and is presented to the work tangentially, thus ensuring an uninterrupted flow of chips. The rollers of the two steady rests are mounted on needle bearings so that the highest speeds can be used without risk of seizure. A fluted handwheel with graduations on the sleeve is provided o operate the tool-slide while setting to the required diameter; a lever above the handwheel withdraws the tool to avoid damage to the cutting edge on the return stroke of the slide. A simpler device known as the "chipstream tool-post" has been designed for use as an alternative to the box tool when Ardoloy tools are employed on work such as shafts and spindles, which are stiff enough to be turned from the cross slide. The tool post is mounted on the rear of the cross slide and the tool is presented tangentially to the work at an angle which provides front and side clearance; cutting takes place on the end of the tool. The vee groove behind the cutting edge of the tool coils up the chips and directs them away from the operator.

For grinding the tangential tools to the correct cutting angles, also the vee grooves, a special universal grinding fixture can be supplied. It is most economical to regrind as soon as the cutting edge shows signs of wear. To prolong the use after this, rapidly increases the rate of wear, more heat is generated due to increased friction so that the edge ultimately breaks down and burns. The result is that much more metal has to be ground away to bring the edge back to normal.

Proportions of Locomotive Boilers—III*

Potential power output based on grate area

By E. C. Poultney

WHAT is the average power output of a steam locomotive with a given boiler and rated tractive effort? There are several methods which may be advanced as providing an answer. They cannot be discussed now, and the writer will merely put forward what may be termed a short cut to the answer. It is thought that the best way to reply to this question is first of all to put forward a method for determining the size of boiler for a given locomotive, and then to develop a simple means for the rating of locomotives. The potential power of any engine is a function of the cylinder dimensions, the available maximum steam pressure, and the piston speed in ft. per min. A ready, and at the same time acceptable method, would be to use the Cole constants of cylinder power and then to establish a reasonable figure for the coal normally required per cylinder horse-power hour. The next step would be to decide on the maximum rate of firing coal per sq. ft. of grate per hr. from which the required grate area is, of course, easily determined.

The fuel rate per h.p. is determined for present purposes by two prime factors; these are the probable evaporation per lb. of coal at the selected maximum firing rate and the heat value of the coal as fired. Cole uses a fuel consumption of 3·25 lb. per cylinder h.p. per hr. This, in the writer's opinion, is rather a high figure for modern conditions, and 2·7 lb. is proposed. It is realised that this figure is only an approximation; it is, however, a fair value for present purposes. Boiler and cylinder efficiencies affect the actual coal rate. The maximum firing rate is taken to be 120 lb. per sq. ft. of grate per hr., and an evaporation of about 6·75 lb. of water per lb. of coal, meaning in turn, a steam rate, including all requirements and normal road operating conditions, of 18·25 lb. per i.h.p. hour. Cole assumes maximum h.p. at 1,000 ft. per min., and this assumption is accepted.

The fundamental formula for determining correct boiler dimensions is, then, as follows. Superheated steam is assumed, and fuel having a heat value of 14,000 B.Th.U. per lb. as fired. For lower values the grate area is proportionately increased, and for better grades it may, of course, be smaller. For a given two cylinder simple-expansion engine we therefore have

$$\frac{\text{H.p.} \times 2{\cdot}7}{120} = \text{G.A.} \quad . \quad . \quad . \quad (1)$$

G.A. = Grate area. sq. ft.
H.p._i = A × P X0·0029.
A = Area of one cylinder, sq. in.
P = Boiler working steam pressure, lb. per sq. in.

The value 0·0229 is the Cole factor for cylinder horsepower at 1,000 ft. per min. piston speed.†

Having determined the grate area, the net gas area through the boiler is obtained by taking out the figure for the maximum weight of gas liberated by the fire grate. At a firing rate of 120 lb. of coal per sq. ft. of grate per hr., Fig. 4 shows that the gas per lb. of coal fired is 12·5 lb. The total gas production is then

G.A. × 120 × 12·5,

and the net gas area through the boiler, if 11,000 lb. per sq. ft. of gas area be allowed as a fair maximum amount, is then

$$\frac{\text{G.A.} \times 120 \times 12{\cdot}5}{11{,}000} = \text{Gas Area sq. ft.}$$

The most important dimensions of the boiler are thus determined. The size of the tubes depends entirely on their length, except that in general for large boilers diameters of 2 in. or 2¼ in. are preferred dimensions, meaning minimum distances over tube plates of 14 ft. 9 in. and 16 ft. 10 in. respectively. The size of grate obtained will be ample, and firebox volume therefore not of great importance; however, about 5 to 6 cu. ft. of volume should be allowed for each sq. ft. of grate. The evaporative heating surface grate area ratio is preferably about 55 to 65 to 1, and for the combined heating surface about 70 to 80 to 1. These ratios, EVAP. H.S./G.A. and COMB. H.S./G.A. are included in Table I. In cases where the grate is made large for low-grade fuels the values of these ratios will, of course, be less.

The Effect of Different Fuel Values

The foregoing computations were based on the use of coal with a heat value per lb., as fired, of 14,000 B.Th.U. If coal of a greater heat content is used, less will, of course, be required for a given evaporation, and for coal of lower values more is necessary. Assuming in each instance the same maximum firing rate of 120 lb. per sq. ft. of grate per hr. is maintained, and that the weight of gas per lb. of coal fired is still 12·5 lb. (the latter is not strictly correct, but will suit present purposes), the relation between the respective grate areas will be expressed by the following equation :—

$$\frac{\text{Cyl. h.p.} \times 0{\cdot}32}{1{,}000 \text{ B.Th.U. in coal}} = \text{G.A.} \quad \ldots \quad (2)$$

As an example, Locomotive 13, Table I, may be taken. The cylinders are 23 in. by 28 in. and the working steam pressure is 180 lb. per sq. in. The cylinder h.p. is therefore, for superheated steam, 1,714. For fuel with a heat value of 11,500 B.Th.U. and a firing rate of 120 lb. per sq. ft. of grate per hr., the required grate area is

$$\frac{1{,}714 \times 0{\cdot}32}{11{,}500} = 47{\cdot}75 \text{ sq. ft.}$$

Actually, the grate area is 51 sq. ft. meaning that in relation to the tractive effort the grate is larger. For the same steam supply the firing rate would, therefore, be less, and conversely for the same rate of firing the evaporation would be increased, and the tractive effort available at the same speed in m.p.h. greater. A large grate in proportion to the power required is always an advantage, for, from the point of view of efficiency, the lower rate of firing means an increase in evaporation per lb. of coal; therefore the fuel used per unit of power developed is less. However, there is an economic maximum governing the size of the boiler, and hence the locomotive that can be used, for although a large boiler in proportion to the power required would be an economical steamer, and in like manner the engine may have large cylinder capacity, thus running at short rates of cut off, the resulting locomotive can be so large in proportion to the load hauled that the actual coal and water consumed may be disproportionately high when referred to the work done at the drawbar. Taking the same engine, and assuming fuels of higher heat values, we have for the same h.p. the following :—

Heat value in coal B.Th.U. per lb.	Grate area sq. ft.	Cyl. h.p. G. A.
15,000	36·50	47·0
14,000	39·50	44·0
11,500	47·75	36·0

Proportioning the Boiler

The general proportions of the boiler can now be considered. The principal ratios or Design Factors, are given in Table I and recommended ratios as a basis for design purposes are about as follows :

T.F.H.S./F.B.H.S.	10 to 11
Evap.H.S./G.A.	55 to 65
Comb.H.S./G.A.	70 to 80
F.B.H.S./G.A.	5 to 6
F.B.V./G.A.	5 to 6

For fuel of 14,000 B.Th.U. when lower grade coals are used the grate area is made larger, from which it follows the values of the first three ratios must be less. The ratios of 10 and 11 for T.F.H.S./F.B.H.S. will usually ensure adequate tubular heating surfaces with proper length to bore ratios and adequate gas areas. These proportions give a well-balanced boiler. Based on the above, an example may be taken, and for this purpose an engine similar to No. 13, Table I, is assumed. The fuel to be used is 14,000 B.Th.U. coal, as fired.

Cylinders, 20½ in. × 28 in.
Steam pressure, 200 lb. per sq. in.
Cylinder, h.p. at 1,000 ft. piston speed.
$20\tfrac{1}{2}^2 \times 0{\cdot}7854 \times 0{\cdot}0229 \times 200 =$
1,514 I.H.P.

Grate Area

$$\frac{1{,}514 \times 0{\cdot}32}{14{,}000} = 34 \text{ sq. ft.}$$

Free Gas Area

$$\frac{120 \times 12{\cdot}5 \times 34}{11{,}000} = 4{\cdot}65 \text{ sq. ft.}$$

The tubes and flues should have sufficient length overall to provide an A/S ratio of 440 and the disposition of the boiler heating surfaces would be as under for a grate area of 34 sq. ft

F.B.H.S./G.A. 5·5, Firebox	187	sq. ft.
T.F.H.S./F.B.H.S. 10·5, Tubes and flues ...	1,970	,,
Total Evap.	2,157	,,

Evap.H.S./G.A. 63·4

As to the superheater, it is, of course, assumed that this is large enough to provide a steam temperature of 650 to 700° F., which can readily be attained while working to the ratios given. It may be considered that the above proportions give a large boiler for the power. However, if heavy trains are to be got over the road in good time in varying circumstances, it is a good fault, and will pay in the long run.

Tractive Effort and Drawbar Pull

Various methods are used to determine the power of a steam locomotive, and thus fix the loads which may be handled over a given division. As a short cut to the solution of the problem, the writer has proposed, as a basis, the size of the grate, and suggested that it can be fairly taken that each sq. ft. of grate can, in general, produce 40 h.p. at the cylinders.‡ On this basis, the proportion of the maximum indicated tractive effort, not the rated tractive effort,

*Parts I and II appeared in our issues of April 9 and May 21

† "Important Factors in Design of Locomotive Boilers," J. T. Anthony, *The Railway Mechanical Engineer*, November, 1921

‡ "The Firebox Proportions of Modern Locomotive Boilers," THE RAILWAY GAZETTE, October 29, 1937

that any locomotive can develop is given by the formula—

$$\frac{\frac{375 \times \text{h.p.}}{\text{V}}}{\frac{\text{Ind. Tractive Effort}}{\text{G.A.}}} = \text{Percentage of Ind. T.E. at V speed m.p.h.}$$

h.p. = The i.h.p. per sq. ft. of grate area. As an example, take engine No. 1, Table I, and assume 40 i.h.p. per sq. ft. of grate, which is the power available under average conditions of working when economical operation is assumed. It is not " capacity " operation. The indicated tractive effort is

$$\frac{16{\cdot}5^2 \times 28 \times 250 \times 0{\cdot}86}{81} \times 2 = 40500 \text{ lb.}$$

and the formula therefore becomes

$$\frac{\frac{375 \times 40}{\text{V}}}{\frac{40500}{50}} = \frac{15000}{\text{V}} = \frac{18{\cdot}53}{\text{V}}$$

It should be noted the value of the m.e.p. constant varies according to the full-gear cut off, which for a cut off of 75 per cent. is

$$\frac{2}{\left(\frac{100}{75}\right)+1} = \frac{2}{1{\cdot}33+1} = 0{\cdot}86$$

It may be mentioned that the value 18·53 is also the maximum speed at which the locomotive may be operated in full gear. Up to this speed the actual indicated tractive effort is limited only by the valve gear and the size of the steam ports, and beyond this point the boiler is the limiting factor. The curves of tractive effort plotted in Fig. 5 computed as above show reasonably well the tractive effort for the locomotives examples 1, 2, and 3, Table I, that is, the cylinder tractive effort and the available pull on a first-class standard track and on a level tangent. The lower set of curves are the resistances of coaching stock for trains of the weights shown under the same conditions as to road bed and contour. The actual rating of these locomotives is not shown by these curves because the loading assigned to any locomotive is dependent on the ruling grades to be traversed and the speeds desired ; further, weather conditions and the power required for acceleration must be considered. The curves do, however provide a basis for rating.

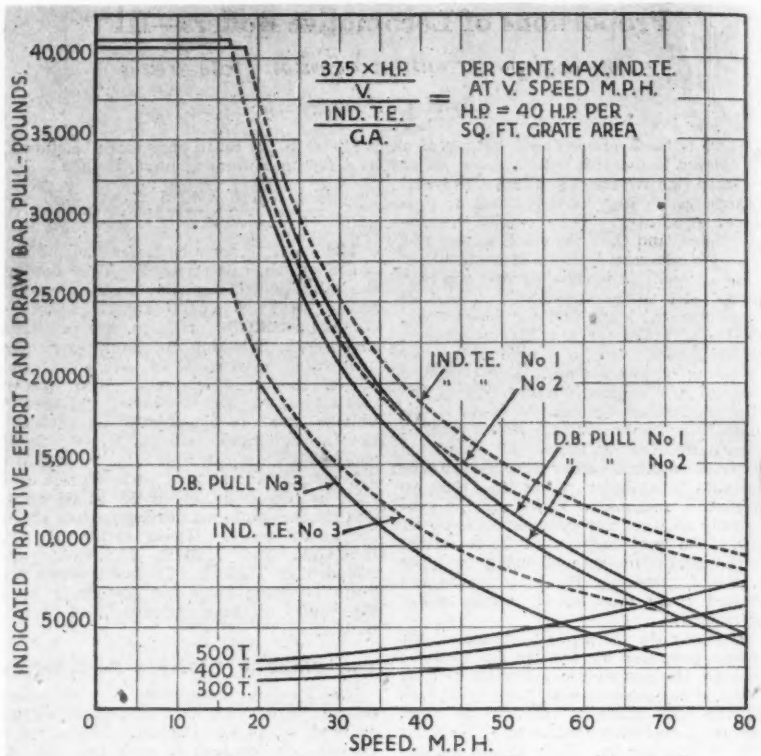


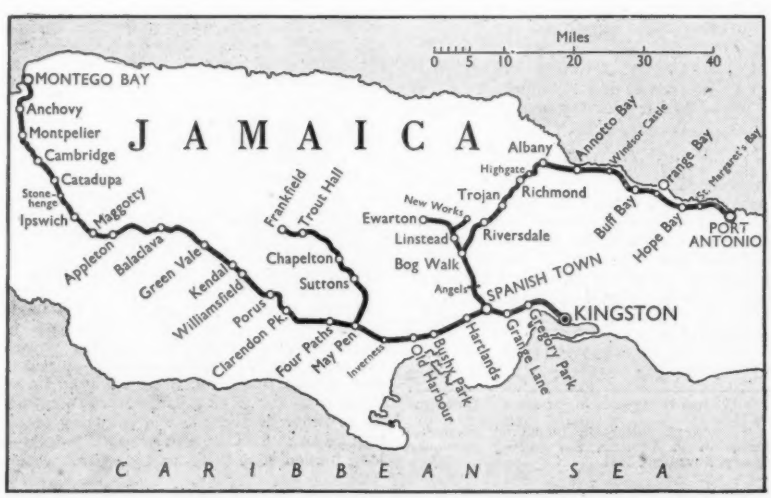
Fig. 5—Comparative pull-speed characteristics

The writer is much indebted to the Chief Mechanical Engineers of the Great Western, London Midland & Scottish, and Southern Railways, for information concerning boiler dimensions, and also for similar particulars furnished by Mr. F. S. Whalley of the Vulcan Foundry Limited. Information relative to the New York Central has been obtained through the courtesy of Mr. P. W. Kiefer, Chief Engineer, Motive Power & Rolling Stock.

(Concluded)

The Jamaica Government Railway

JAMAICA is the largest island in the West Indies. It is 144 miles long and 4,193 square miles in superficial area, with a population of 1,138,558. There is only one railway on the island, the Jamaica Government Railway, 210 miles in length on the standard 4 ft. 8½ in. gauge, owned and operated by the Government of the Colony. The Jamaica Railway is noteworthy as being the earliest colonial railway of the British Empire, having doubtless owed its inception to the " railway mania " of the forties. It was projected in 1843, and construction was begun in 1844. The first section, from Kingston through Spanish Town to Angels, 14½ miles, was opened in 1845. The line was extended in 1869 to Old Harbour. In 1869 the Jamaica Railway Company was bought by the Government of the island for £93,932, although the property represented a capital expenditure of upwards of £267,000. In 1885 extensions were opened to Ewarton, 14½ miles, and Porus, 24½ miles. In 1890 arrangements were made with an American syndicate, the West India Improvement Company, to take over and complete the railway. The American company completed the 66-mile extension of the western line to Montego Bay in 1894, and a 54-mile extension of the northern line to Port Antonio in 1896. In 1900 the line was forfeited to the Government for default in the payment of interest, and it has since been operated as a department of the Colony. In 1913 an extension of 13 miles from May Pen to Chapelton, through the Rio Minho Valley was opened, and this has since been further extended to Frankfield. The branch from Linstead to New Works was brought into service in 1913. The capital debt of the railway now stands at £3,953,626, covered by an issue of Government debentures, and interest charges amount to £58,142.



Supplying Permanent Way Material in Wartime

Women do most of the work at an engineering depot of the Southern Railway

UNDER the increasingly difficult conditions in industry occasioned by the withdrawal of men and women for the uniformed services, new demands are continually being made on those who remain, with the result that many older women are now doing work that once would have been considered beyond their strength or capabilities. On the occasion of a recent visit to one of the permanent way material depots of the Southern Railway we were able to see for ourselves that, given a suitable plant layout to reduce the need for handling very heavy components, women can be employed successfully in work for which men were formerly believed to be necessary. Many of the women working at this particular depot are the wives or relatives of men who have gone into the Forces or into the shipbuilding industry. Not a few are the mothers of several children. The women have been engaged one by one to replace men and they have been trained on the job by male colleagues. Very noticeable at the depot was the splendid co-operation of the few men remaining and some credit should be given to them for the smooth running of the depot. The fine team spirit is all the more praiseworthy in that when the women have succeeded in mastering their work they are given a man's wage.

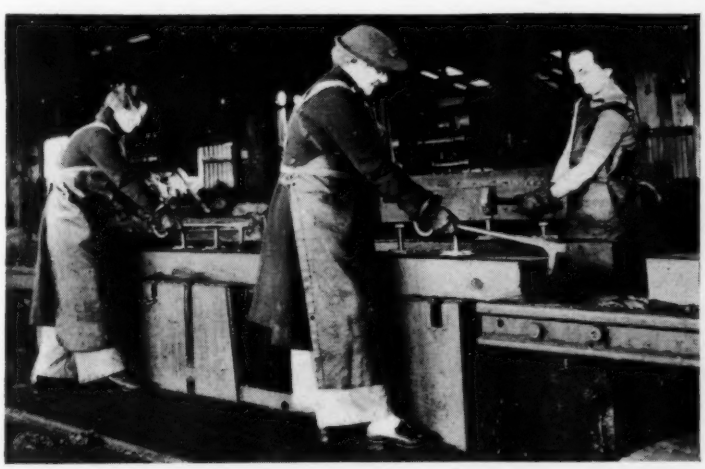
Timber for sleepers arrives by water in normal times and is unloaded by crane on to a quay, but for the present it is being brought, cut roughly to size, in railway wagons. At the outset each balk is passed through a machine which simultaneously trims the ends to the correct length and faces the surfaces that are to receive the chairs. Before passing out of the machine the sleepers are drilled to take the chair fastenings. Two kinds of sleepers are produced by the machine, an older type which is surfaced to take flat-bottom chairs, each with three screwed holding-down spikes, and a newer kind surfaced to take chairs with grooved bottoms and drilled through to receive two fixing bolts for each chair.

On leaving the machine, sleepers are loaded into special trollies which run on a 2-ft. gauge railway to the creosote chambers. Each trolley carries approximately 58 sleepers and the chambers, of which there are two, located side by side, can each accommodate three such trollies. The chambers are 7 ft. in dia. and 72 ft. long. Sleepers made of certain kinds of timber, notably Douglas fir, are incised before creosoting; the surface is gashed by small knives so that the creosote may penetrate more readily to the requisite depth. Sleepers of very hard wood, notably jarrah, require roughening underneath to make them less liable to movement over the ballast. The machine for these special operations is situated on the way to the creosote chambers. In these chambers the creosote is applied under a pressure of 80 to 100 lb. per sq. in. to ensure a good depth of penetration. To give the right consistency a temperature of about 150° F. is maintained.

Creosoted sleepers are unloaded from the trollies on to roller runways leading to the chairing section. A runway is provided for each of the two kinds of sleeper. At the time of our visit the sleepers being dealt with were those having the two-hole bolted type of chair. They were placed on the runway upside

Right: Special machine for tightening nuts down on to chairs

Below: Hammering bolts in from underside of sleeper



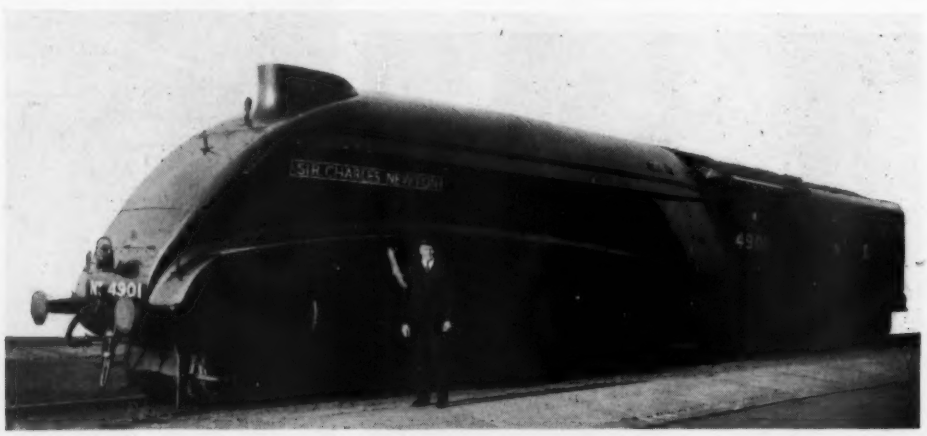
down for insertion of the bolts, which required hammering home to ensure that the ribbed locking plate under the head bit deeply into the timber. Sleepers with the bolts fitted are turned over by being rolled from one runway into another which is alongside. In the course of their journey down this runway they have the chairs lowered on to the bolts and the nuts applied finger tight. The final operation of nut tightening is carried on a machine which has been adapted by the company to apply pressure by means of hydraulic rams underneath the sleeper at the same time that ratchet wrenches turn the nuts. Pressure is applied to the bolt heads and is resisted by a frame engaging the chairs; consequently the bolts are pressed firmly home and the timber is put under compression during the nut-tightening operation. After leaving this machine the sleepers pass out of the depot into railway wagons for transport to any part of the system.

Although the work on sleepers involves the most extensive use of material and takes up much of the available space, the depot is not confined to this class of work. There is a machine shop in which over half the switches and crossings used on the Southern Railway system are made; there are also a foundry and a sawmill.

Above: Loading chairs from stock into container for transport by crane

Left: One of three trolley loads of sleepers to be impregnated simultaneously in creosote chamber

Women are being employed in all sections to a growing extent. Special provisions which have been made for their greater comfort includes a cloakroom with steam-heated drying facilities for clothes and shoes; also a shower. Some of the work, mostly very heavy work, is out-of-doors and one or two jobs are unusually dirty so that these facilities are much appreciated.



The Chief General Manager of the L.N.E.R. standing before the class "A4" Pacific locomotive named after him

RAILWAY NEWS SECTION

PERSONAL

Mr. O. H. Corble, Assistant to the Chief General Manager & Industrial Agent, L.N.E.R., has been appointed to the managing committee of the Railway Research Service.

Mr. W. H. Lock, Ministry of War Transport representative for the Persian Gulf area, has been appointed representative of the Ministry in Canada.

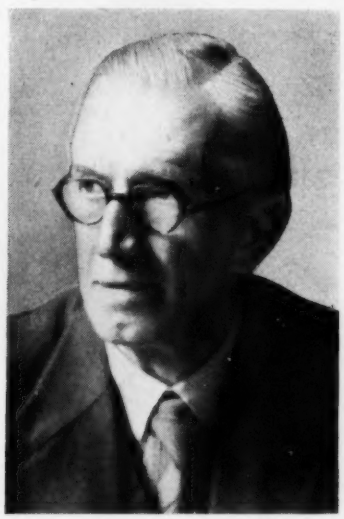
Mr. W. George Pape, O.B.E., Indoor Assistant to the General Manager, Southern Railway, who, as recorded in our June 11 issue, has been appointed Wartime Economy & Salvage Liaison Officer, entered the General Manager's Office of the former L.B.S.C.R. in 1900. After occupying various positions in that office he was appointed Assistant Staff Clerk. He was trained under Mr. Finlay Scott, then Superintendent of the Line, and obtained practical experience in signalling, station working, and general outdoor working in the Operating Department. In 1909 he was made Assistant Private Secretary, and later Private Secretary, to Sir William Forbes, then General Manager. In January, 1918, he was appointed Chief Clerk to the General Manager's Office; and in 1921 he was appointed Chief Assistant to the General Manager. Mr. Pape was also responsible for the organisation and development of the L.B.S.C.R. Training School. He was appointed to the position of Indoor Assistant to the General Manager in 1923. He thus has served under four General Managers. Mr. Pape is a member of the Institute of Transport; and among his other activities he is Chairman of the Southern Railway Ambulance Centre and is a Knight of Grace of the Venerable Order of St. John. In his new railway office he will be responsible to the General Manager for advising on, and co-ordinating, economy and salvage work of the departments.

Mr. W. G. Pape

Appointed Wartime Economy & Salvage Liaison Officer, Southern Railway

Mr. Eric Mensforth is to act as Chief Production Adviser to the Chief Executive, Ministry of Aircraft Production.

Mr. H. G. Smith, who, as recorded in our June 11 issue, has retired from the service of the L.M.S.R., joined the former Midland Railway in 1898, and from 1902 to 1909 was on the staff of Mr. W. G. Hawkins, then District Superintendent at Leeds. He then went to the office of the General Superintendent, Derby, gaining experience in all phases of commercial work there between 1909 and 1922, except during his period of active service in France from 1915 to 1919. During 1923-27, after the formation of the London Midland & Scottish Railway, he was engaged on problems arising out of amalgamation, and from 1927 to 1932 he was with Mr. J. H. Follows, then Vice-President (Commercial & Operating). When, in 1932, Sir Ernest Lemon succeeded Mr. Follows as Vice-President, Mr. Smith became his Assistant, and during the next ten years was associated with him in all the developments of traffic facilities on the L.M.S.R., many of which have been dealt with at length in *The Railway Gazette*. In January, 1942, Mr. Smith was appointed Secretary of the Railway Companies Association Commission on Post-War Planning & Reconstruction; from this position he now retires.



Mr. H. G. Smith

Assistant to Vice-President (Commercial & Operating), L.M.S.R., 1932-43

ASSOCIATION OF CONSULTING ENGINEERS

Mr. S. B. Donkin, M.Inst.C.E., M.I.Mech.E., M.I.E.E. (Messrs. Kennedy & Donkin), has been elected Chairman of the Association of Consulting Engineers for the year 1943-44. Mr. Donkin was Chairman also in 1927-28. The following have been elected members of the association: Mr. R. MacP. Campbell, B.Sc., M.Inst.C.E., M.Inst.W.E. (Messrs. Babtie, Shaw & Morton); Mr. J. N. Peirce, M.Inst.C.E., M.I.Struct.E. (Messrs. B. L. Hurst & Peirce); Mr. A. H. S. Waters, V.C., D.S.O., M.C., M.Inst.C.E., M.I.Mech.E., M.I.Struct.E., M.Inst.W.E.; and Mr. J. L. Wheeler, M.Inst.C.E., M.I.Struct.E.

Among the recipients of the British Empire Medal (Civil Division) in the King's Birthday Honours List is Mr. Christmas Rice, Able Seaman, Southern Railway.

Mr. A. J. Elmes, Deputy Chief of Works Section, Traffic Manager's Office, Waterloo, Southern Railway, who, as recorded in our June 11 issue, has been appointed Assistant for Railway Executive matters, General Manager's Office, entered the service of the former L.S.W.R. in 1902, and served in various sections of the Office of the Superintendent of the Line, Waterloo, until the amalgamation. In November, 1923, he became Deputy Chief of Works Section, Chief Operating Superintendent's Office, Waterloo. In June, 1924, he was appointed Chief Clerk, London (West) Divisional Commercial Manager's Office, Waterloo, and held that position until the amalgamation of the Operating and Commercial Departments in April, 1930, when he became Chief Clerk, London (West) Divisional Superintendent's Office. Mr. Elmes was appointed to the position he now vacates in February, 1934.

Mr. A. J. Elmes

Appointed Assistant for Railway Executive matters, Southern Railway

Lord Hirst, of Witton, Chairman & Managing Director of the General Electric Co. Ltd., whose death was recorded in our January 29 issue, left £498,650.

We regret to record the death, at the age of 75, of Mr. H. S. Balliet, Secretary-Treasurer of the Railway Signal Association of America in 1905-06, and in 1918; and Secretary of the Signal Section of the then American Railway Association from 1919 to 1930. Mr. Balliet was President of the Railway Signal Association for 1910. He entered railway service in 1883, but not long afterwards transferred to the Western Union Telegraph Company. He joined the Lehigh Valley Railroad in 1893 as a telegraph operator, and later held positions in various departments, leaving the line, as Assistant Signal Engineer, in 1905, to become Engineer (Maintenance of Way) at the Grand Central Terminal, New York, where he became Signal Engineer of the Electric Division in 1907, and Assistant Terminal Manager six years later. In 1926 he took over special duties for the New York Central and continued for some years in a consulting capacity. Mr. Balliet wrote a number of technical papers, and

engaged in active committee work for the Railway Signal Association. (*See editorial note, page* 602).

A Century of Railway Service

The retirement of Mr. S. H. Whitelegg, M.I.Mech.E., M.I.Loco.E., from the L.M.S.R. brings to a close upwards of a century of combined service by members of this family to the British railways during which time much useful and even pioneer work has been performed.

Mr. Thomas Whitelegg, when Locomotive Superintendent of the London Tilbury & Southend Railway, was the designer of various types of tank locomotives which in size and performance ranked amongst the most successful of their types in the country. His first 4-4-2 tank locomotives appeared in 1880. He was also one of the first, if not the first, British railway engineer to introduce electric train lighting in a practical form.

Mr. R. H. Whitelegg, who succeeded his father as Locomotive Superintendent of the same company, and was later appointed Chief Mechanical Engineer of the Glasgow & South Western Railway, will be remembered by his designs of Baltic type tank locomotives which again were amongst the earliest of this type and were, no doubt, the forerunners of the many six-coupled locomotives in this country now performing such universal and useful work.

Mr. S. H. Whitelegg, the younger brother of Mr. R. H. Whitelegg, himself was progressively Works Manager at Plaistow and later Resident Mechanical Engineer of the Tilbury Section of the Midland Railway. When it was decided to merge the works of the London Tilbury & Southend and North London Railways and concentrate at Bow, he was appointed Resident Mechanical Engineer, Bow, to supervise this work under the late Sir Henry Fowler. He remained there until 1928, when he was appointed Works Manager of the locomotive works at Horwich and during his period there he was transferred to Derby where he was resident for approximately two years in connection with various investigation committees of which he was a member. In 1937 he was appointed Works Superintendent for Locomotives, Carriages & Wagons at St. Rollox, where he remained until July, 1940, when he was given leave of absence to join the Ministry of Supply. Mr. S. H. Whitelegg is a Member of the Institution of Mechanical Engineers and a Member of Council of the Institution of Locomotive Engineers, having joined the latter in 1912.

Mr. S. H. Whitelegg's only son, who made up the third generation, commenced his apprenticeship at Crewe Works, and was permitted after two years there to take a three-year course at Downing College, where his ability combined with the knowledge he had gained at Crewe enabled him to obtain his B.A. degree with honours.

Mr. C. H. M. Elwell, Assistant Mechanical Engineer (Outdoor), Doncaster, L.N.E.R., whose death was recorded in our June 11 issue, was educated at Haileybury College and at London University, where he took his degree of B.Sc.(Engineering). He was apprenticed in 1906 to the late Mr. James Holden, then Locomotive Superintendent of the Great Eastern Railway at Stratford, and subsequently became a Locomotive Running Inspector, and a Materials Inspector; afterwards he served in the Drawing Office. For two years he was Technical Assistant to Mr. C. W. L. Glaze, at that time Works Manager, after which he assisted Mr. A. J. Hill, then Chief Mechanical Engineer, as assistant on special work, including the manufacture of munitions at Stratford Works during the war of 1914-19. He was engaged also on work in connection with the Railway Priority Committee, and with the allocation of steel to British railways and the extensive purchases of railway materials in America. In 1919 he became District Mechanical Engineer, Norwich District; and in 1921 he was transferred to Cambridge as Assistant Divisional Superintendent of Operation; he became District Locomotive Superintendent there in 1924. After two years in this position Mr. Elwell was transferred, in July, 1926, to Liverpool Street, as Assistant to Mr. W. G. P. Maclure, then Locomotive Running Superintendent, Southern Area, and served in a similar capacity with Mr. I. S. W. Groom, and Mr. A. H. Peppercorn, before being appointed, in September, 1938, Locomotive Running Superintendent (Eastern Section), Southern Area. He was transferred to his last position at Doncaster early in 1942.

Mr. A. E. Tattersall, Signal & Telegraph Engineer, London, L.N.E.R., who, as recorded in our issue of June 4, has been appointed Assistant Chief Engineer (Signals), began his railway career in the Signalling Department of the Lancashire & Yorkshire Railway. He gained experience of electric-pneumatic power working at Bolton and on the Liverpool and Southport electrification, and also of intermediate automatic signalling. In 1906 he was appointed Chief Assistant to the Signal Superintendent of the Great Southern & Western Railway (Ireland) but in the next year he joined the Metropolitan Railway as Signalling & Electrical Assistant to the Engineer, where he was responsible for the changeover from mechanical to all-electric power and automatic signalling throughout the electrified area. He was connected also with the installation of automatic signalling on the East London Railway; the latter and the Baker Street installation were the first in this country where a.c. track circuits were employed on a large scale. During his service with the Metropolitan Railway, Mr. Tattersall was responsible also for dispensing with the usual facing point locking-bar in track-circuited installations, a practice which since has become universal. From 1915 to 1919 he held a commission in the R.A.O.C.; and in January, 1921, he was appointed Signal Superintendent to the Engineer of the Great Northern Railway, in which position he was responsible for the introduction on a large scale of power-operated outlying points and signals which enabled a considerable number of signal boxes to be dispensed with; and for the reversible working and three-position signalling through the Gas Works Tunnel at Kings Cross. In April, 1924, he became Assistant Signal Engineer for the Southern Area of the L.N.E.R. In August, 1925, he was transferred to York; and in July, 1928, he was appointed Signal & Telegraph Engineer for the North Eastern Area, an appointment which marked a new development on the L.N.E.R., where previously separate officers had been respon-

Elliott [*& Fry*

Mr. S. H. Whitelegg

Lately Works Superintendent, St. Rollox Glasgow, who has retired from L.M.S.R. service.

The late Mr. C. H. M. Elwell

Assistant Mechanical Engineer (Outdoor), Doncaster, L.N.E.R.

Lafayette [*London*

Mr. A. E. Tattersall

Appointed Assistant Chief Engineer (Signals), L.N.E.R.

sible for signals and telegraphs. Subsequently, Mr. Tattersall was responsible for the design and supervision of the installation of colour-light signalling on the main line between York and Northallerton, and in other places; this represented the introduction to this country of route relay interlocking; phase-controlled track circuits; white light shunt signals; and the junction indicator, the use of which now has become standard practice. He has been associated also, in the North Eastern Area, with the introduction to this country of approach lighting, intermittent track circuiting for the control of single line and with the extended use of mechanical colour-light signals. He was responsible for the installation of a new method of branch-line signalling on the Boroughbridge branch, and for the introduction of carrier wave telephony and modern teleprinters between York and Newcastle. In February, 1936, Mr. Tattersall took up the duties of Signal & Telegraph Engineer, Southern Area, L.N.E.R., and since that date has been responsible for the successful conversion of the majority of the Southern Area telegraph trunks to a teleprinter network and automatic switching in connection therewith which is believed still to be the only one of its kind in the country. He was also responsible for the introduction of the sequence switch interlocking, a recent development in circuit interlocking, which has been installed at Doncaster. Mr. Tattersall is a member of the Institution of Electrical Engineers; was elected a Fellow of the Institute of Physics in 1933, in recognition of his pioneer work in railway signalling; was President of the Association of Railway Companies' Signal Superintendents & Engineers, 1919; and is a member of the Signal and Telegraph Sections of the American Railway Association. His book, "Modern Developments in Railway Signalling," was published in 1921 by *The Railway Gazette*. He has been keenly interested in the training of the staff both in the North Eastern and Southern Areas, L.N.E.R.; in fact, the Signalling School at York is one of the finest of its kind. The course of lectures given to the staff in those areas was so successful that they were reprinted in book form, under the heading "Railway Signalling & Communications" (published by *The Railway Gazette*), which has been a great success. Mr. Tattersall has contributed also many papers on signalling to the proceedings of learned societies, and several articles from his pen have appeared in our columns.

On February 23, H.E. the Viceroy held an investiture at New Delhi, in the course of which Mr. Arthur Cecil Griffin, O.B.E., General Manager, N.W.R., was invested with the honour of Knighthood. He is the first General Manager of the system to receive this honour during his tenure of office.

INDIAN RAILWAY STAFF CHANGES

Mr. A. E. Howell, officiating Deputy Chief Mechanical Engineer, N.W.R., has been appointed Officer on Special Duty at Headquarters, Lahore.

Khan Bahadar A. L. Sheik has been appointed to officiate as Deputy Chief Engineer (M.), N.W.R.

Among those elected recently as honorary members of the Institution of Municipal & County Engineers are the Rt. Hon. Lord Balfour of Burleigh, a Director of the London & North Eastern Railway Company; the Rt. Hon. Lord Brabazon of Tara, M.C., who was Minister of Transport, 1940-41; and Prof. C. E. Inglis, O.B.E., F.R.S., M Inst C.E., Professor of Mechanical Sciences in the University of Cambridge.

L.M.S.R. APPOINTMENTS

Mr. H. N. Davies, Chief Staff Clerk, District Goods Manager's Office, Liverpool, to be Staff Assistant to District Goods Manager, Broad Street, *vice* Mr. W. Eastland, deceased.

Mr. P. Haworth, Chief Cartage Clerk, District Goods Manager's Office, Bolton, to be Assistant to District Goods Manager (Commercial), Bolton, *vice* Mr. F. Grundy, promoted.

Mr. G. A. King, District Coal Traffic Agent, District Goods Manager's Office, Wolverhampton, to be Goods Agent, Spon Lane, *vice* Mr. A. Hicking, retired.

Mr. C. E. Fry, Stationmaster, Leicester (also in charge of Humberstone Road), to be Stationmaster, Leeds (City), *vice* Mr. F. W. Pearson, retired.

Mr. O. Best, Stationmaster, Huddersfield, to be Stationmaster, Leicester (also in charge of Humberstone Road).

Mr. J. J. Davies, Stationmaster, Low Moor, to be Stationmaster, Huddersfield.

Mr. J. S. Nicholson, Stationmaster & Goods Agent, Whitchurch, to be Stationmaster, Low Moor.

Mr. H. J. Jones, Stationmaster, Rotherham (Masboro') (also in charge of Holmes & Westgate), to be Stationmaster & Goods Agent, Whitchurch.

Mr. F. J. Boothroyd, Stationmaster, Blackpool (Central), to be Stationmaster, Liverpool (Exchange), *vice* Mr. S. R. Sayer, retiring.

Mr. W. F. P. Thompson, Head Office Inspector (Staff), Chief Commercial & Chief Operating Manager's Office, Manchester, to be Stationmaster, Blackpool (Central).

Mr. H. Oakley, Stationmaster, Lancaster (Castle), to be Stationmaster, Wolverhampton, *vice* Mr. A. J. W. Kiff, retiring.

Mr. C. A. Cole, Stationmaster, Dudley, to be Stationmaster, Lancaster (Castle).

Mr. S. H. Baker, Controller, Birmingham, to be Stationmaster, Dudley.

Mr. H. F. J. Lyons, Stationmaster & Goods Agent, Cricklewood, to be Stationmaster & Goods Agent, Plaistow (also in charge of Upton Park), *vice* Mr. A. S. Hannan, retired.

Mr. T. C. Seddon, Chief Booking Clerk, Liverpool (Exchange), to be Passenger Agent, Preston, *vice* Mr. W. M. Matthewson retiring.

Mr. C. H. D. Read, Mechanical Inspector, C.M.E. Department, Derby, to be Assistant District Locomotive Superintendent, Rugby, *vice* Mr. R. H. McLean, transferred.

Mr. C. A. Pass, Head Office Inspector, Office of Divisional Superintendent of Operation, Crewe, to be Assistant District Locomotive Superintendent, Longsight, *vice* Mr. W. Bramley, transferred.

Mr. E. H. C. Shorto, Running Shed Foreman, Peterborough, to be Assistant District Locomotive Superintendent, Saltley, *vice* Mr. C. R. L. Rice, promoted.

Mr. H. Day, who was the company's Passenger Agent at 59, Piccadilly, before that office was closed on November 2, 1940, before which he held the position of Passenger Agent at Southampton, is retiring from the service of the L.N.E.R. Since the end of 1940 he has been engaged on special work for the Passenger Manager, Southern Area.

We regret to record the death on June 11, in his 63rd year, of Mr. John Revans, who retired in 1942 from the position of Divisional Superintendent for Scotland of the Police Department, L.M.S.R.

U.S. Army Transportation Corps School

Colonel Frank S. Ross, Chief of Transportation for the European Theatre of Operations, announces that the first of a number of schools to provide short, intensive training for officers and enlisted men of the United States Army Transportation Corps was opened on June 13. Major-General John C. H. Lee, Commanding General for Services of Supply, spoke at the opening exercises. American and British Army officers and Government transport officials will act as classroom instructors and will lead strenuous practical exercises in the field. Class instruction will be held at an American Red Cross Club.

The school will train officers and men in the transport of supplies, including ammunition, food, and clothing; the movement of troops by rail, water, and road; and the conveyance of sick and wounded. Besides army transport in general, lectures will outline the wartime organisation of British railway and other systems of transport being used in England by American forces.

British instructors for the schools will include Colonel S. O. Screen, O.B.E.; Lt.-Colonel J. N. Oliver; Captain R. H. Sprague, British Liaison Officer with the United States Army Transportation Corps; Mr. William Donald, C.B.E., Deputy Director of Port & Transit Control, Ministry of War Transport; and Mr. K. W. C. Grand, Assistant General Manager, Great Western Railway, representing the British railways.

Phillimore Collection Sale

Reference is made in an editorial note (page 602) to one or two of the noteworthy prices secured by Messrs. Sotheby & Co. on June 8 for items from the Phillimore Railway Collection. The following are some further prices of interest :—

"De Re Metallica," by Geo. Agricola, 1621	£8
Views of the Canterbury & Whitstable Railway. Two uncoloured lithographs, 1830...	£19
"The Coal Viewer," by John Curr, 1797...	£6 10s.
"Chorographia," by William Gray, which contains the earliest known implicit mention of waggonways in England. 1649	£15
12 printed documents (prospectuses, etc.) relating to the Great Western Railway in 1833-1839	£14
"History and Description of the G.W.R.," by John C. Bourne, 1846...	£15
London & Birmingham Railway. Six coloured aquatints by Ackermann, 1837	£48
Collection of 20 railway maps for proposals of 1845	£17
Prospectus of a proposed railway between London and Dover, 1832...	£28
"Public Works of Great Britain," by F. W. Simms, 1838	£9
Stockton & Darlington Railway. Prospectus of 1818	£40
Trevithick's London locomotive of 1808. Six copies of *The Morning Chronicle* containing references	£4 10s.
Liverpool & Manchester Railway. Collection of autograph letters belonging to Charles Lawrence, 1826-1845, including draft of amalgamation agreement with Grand Junction Railway	£46
Lambton Waggon-way. Two autograph letters of 1770 relating to its construction	£1 1s.
First locomotive print. A coloured aquatint, "The Collier," 1813	£6
Painting showing the first railway in Italy, 1843	£30
Printed cotton handkerchief with 12 views of the Liverpool & Manchester Railway, 1831	£32
London & Greenwich Railway. Collection of 23 aquatints and engravings, 1832-1836	£46
Tanfield Arch, the oldest railway bridge in the world. A coloured aquatint, 1804...	£10 10s.
French coffee-making porcelain locomotive and tender, by Toselli of Paris. *c.* 1840	£35
Railway medals and tokens; 155 specimen	£62
Railway share certificates, 7. 1806-1829...	£10 10s.

TRANSPORT SERVICES AND THE WAR—194

R.A.F. Railway Targets in May

The R.A.F. offensive against railway targets in Germany, Holland, Belgium, and France continued without respite during May. The following railway centres were successfully attacked :—

Thionville railway workshop	...	France
Abbeville railway centre	... ...	France
Tubize locomotive works	... ...	Belgium
Tergnier railway centre	... ...	France
Boulogne/Outreau railway centre	...	France
Orleans/Les Aubrais railway centre		France
E.U. railway centre	... ...	France

Photographs taken on May 12 show that, as a result of the attack on Thionville on May 2, the three main railway workshop buildings were extensively damaged.

During May about 150 locomotives were put out of action in attacks by fighters, fighter-bombers, and light bombers, during intruder operations over Germany, the Low Countries, and France. Large numbers of goods trains, wagons, signal boxes, railway sidings, and barges were also attacked.

Mrs. N. James, first woman guard doing regular duty on express passenger trains between London and Gloucester, starting a trip from Paddington, G.W.R.

On May 4, No. 609 (West Riding) Squadron of Fighter Command reached its century in locomotives damaged. This Squadron, flying Typhoons, began its locomotive *Blitz* last November; 42 of the 100 were hit during night operations.

On May 6, an Australian pilot of Fighter Command damaged six goods trains in the space of six min. on the Paris-Brest line.

During the night of May 18/19 about 20 goods trains in enemy-occupied territory were hit by Fighter Command long-range aircraft. (*See editorial article, page* 604).

Coronation Scot for U.S.A. Officers

The L.M.S.R. Coronation Scot train which was sent to America for exhibition, and was seen by some 3,189,000 persons during its 3,121-mile tour of the United States before being exhibited at the World Fair in New York, has been stationed recently at Jeffersonville, Indiana. It has been presented to the United States as living quarters for Army officers of the Quartermaster Corps. The eight vehicles include a first class coach, lounge, dining car, sleeping saloon, kitchen and third class dining car. Each dining car accommodates 80 persons, and the kitchen can serve over 200 meals at a sitting. It may be recalled that the train was stranded in the U.S.A. at the outbreak of war, but its streamlined locomotive and crew were subsequently brought back to this country.

Locomotive in Bomb Crater

One morning recently a notice was posted at Liverpool Street Station, L.N.E.R., advising passengers that the main-line service to Colchester and beyond was subject to delay, by reason of a "failure" at Ingatestone. It may now be revealed that this "failure" was caused by the locomotive of the 8.45 p.m. train from Liverpool Street to Harwich falling into a large bomb crater. The night of the occurrence was dark, and, as the air-raid sirens had sounded, the train, crowded with Servicemen and civilians, was travelling at reduced speed between Shenfield and Ingatestone. A bomb had exploded in the distance when suddenly the track almost immediately in front of the train received a direct hit, making a crater into which the locomotive plunged, taking the driver and fireman to their deaths. The tender mounted the engine and the carriages were fanned out behind; yet, with the exception of the driver and fireman, only one passenger and the guard were slightly injured.

Repair gangs and breakdown cranes were immediately summoned; by 5.0 p.m. the next day all the carriages, one of which had been thrown halfway down an embankment, had been re-railed; three quarters of an hour later, steam cranes had lifted the tender back on the line, and drawn it and the carriages clear of the crater. It took many hours of hard work, digging, burrowing, and tunnelling, to fix stout chains to the locomotive, by means of which the cranes finally re-railed the engine. Filling in and levelling the crater was a task of some magnitude, as the line is on a steep embankment at this point. During the period of interruption, passengers were taken by train to Shenfield, from there to Ingatestone by bus, and thence again by train.

Attending to the coupling of a passenger train —one of the many jobs now performed by women

Turf Fleet in Eire

It is reported from Dublin that 18 fuel barges, built specially for the Government of Eire by Irish boat-builders, are at present operating on the Grand Canal, and are bringing hundreds of tons of turf to Dublin every week. The barges are not mechanically propelled. Each carries 45 to 50 tons of turf. This fleet forms the majority of the first batch ordered by the Department of Supplies. It is understood that a further 10 barges may be built to operate on the Royal Canal, which for some years has not been used.

Coal Transport in Russia

In the first half of May the Molotov railway line transported 225 wagon loads

Scene near Ingatestone, L.N.E.R., shortly after the locomotive of a London-Harwich train had fallen into a bomb crater (see Questions in Parliament, page 625)

of coal in excess of the plan laid down by the State. In the Siberian Far East, similar results are being achieved, for in the first half of May railway workers of the Maritime Province transported over 400 wagon loads of coal in excess of their plan.

Danish Railway Buses

The Danish State Railways are operating some of their buses in the Northern Jutland region on natural gas obtained locally from the extensive deposits located in that area and exploited by the Alpha Gas Company, of Frederikshavn, a subsidiary of Burmeister & Wain. The production of the Alpha Gas Company in 1942 is stated to have totalled a quantity equivalent (in terms of efficiency) to 44,050 gal. of petrol.

Belgian Trams in 1942

Results of the leading tram enterprises in Belgium in 1942 show many features in common, such as the substantial increases in receipts, resulting from the intensified traffic caused by the almost total absence of other means of public conveyance, such as taxis, and by the drastic curtailment, and in many cases suspension, of bus services. Heavy increases in expenditure are also recorded, mainly because of the rise in price of materials, and of maintenance costs. Fares are still on the same level as in April, 1940. Rolling stock and permanent way have deteriorated, and repairs cannot be undertaken. The hard winter of 1941-42 considerably increased the difficulty of working conditions. These remarks are based upon the published results of the tramways at Brussels, Antwerp, Charleroi, Ghent, Liége, and Verviers.

Overcrowding in Denmark

It is reported from Stockholm that, at a meeting held there on May 29 of the officials of the Finnish, Norwegian, and Danish railways, the Danish delegate said that shortage of locomotives was causing serious transport difficulties in Denmark.

At a meeting of the Nordsjaellands Elektricitets og Sporvejs Aktieselskab (Northern Zealand Electricity & Tramway Company), of Copenhagen, held on March 27, it was pointed out that the increase of the traffic on the company's tram and bus system, which began late in 1940, continued unabated throughout 1941 and 1942. The company's system serves the northern part of Copenhagen. Bus services had to be curtailed drastically from May 29, 1942, through shortage of tyres. The Lyngby line, connecting Hellerup (in the north of Copenhagen) with Holte, *via* Lyngby, a distance of 11 miles, was shortened, and service on the ½-mile Gentofte-Jaegersborg section was suspended for a time. Overcrowding of vehicles was stated to be "almost catastrophic."

Brazilian Air Lines

The former German-controlled Condor Air Line in Brazil, a South American offshoot of the Deutsche Lufthansa, which provided the extension in Latin America of the Lufthansa service across the South Atlantic, has been taken over by the Brazilian Government and re-named the Servicos Aéreos do Cruzeiro do Sul Limitada (Air Service of the Southern Cross). It may be recalled that the Condor Air Line suspended operations on December 16, 1941, when the U.S.A. Standard Oil group withdrew its fuel supplies. The aircraft were then reported to be taken over by the Brazilian Government, and an arrangement was in course of negotiation with Argentina for the establishment of a joint service between the two countries. Brief details were given in our issues of January 16 1942 (page 103) and February 13, 1942 (page 247).

North China Railway

According to a report of the North China Railway (established in 1939 as a Japanese-controlled venture), the route length of the company's railway system was 3,726 miles early in the current year, compared with 3,105 miles four years ago. The route length of the company's road services is said to have increased from 2,484 miles to 10,557 miles in the same period.

Japanese Railway Capacity

A recent report from Tokyo states that the Japanese Ministry of Railways launched a campaign on April 1 with a view to increasing the transport capacity of the railways. The slogan is "Ten per cent. more work" and it is claimed that satisfactory results were attained from the start. Within the first 10 days, 91 per cent. of the "planned tonnage" is stated to have been achieved, and the total to have exceeded by 2 per cent the level reached a year previously. By the end of the second ten-day period, the total is said to have been 98 per cent. of the target, and 10 per cent. above the total of a year previously.

Improved Communications in Honduras

Tegucigalpa, the capital of Honduras, and the only capital town in Central America without rail connections, will soon have improved highway communication with the railhead of the Honduras National Railway at Potrerillos. The work has been undertaken by the Institute of Inter-American Affairs (Washington) in collaboration with the Honduras Government, to help tide a banana-growing area over an unemployment crisis. Nearly 2,000 men are at work improving the road. The relationship of Tegucigalpa to the coastal railway systems was indicated on the map we published in our April 9 issue, page 384.

U.S.A. Freight Rates

The Interstate Commerce Commission has suspended from May 15 until January 1, 1944, the increases in freight rates which were established on March 18, 1942. As recorded in our issue of May 29, 1942, these amounted in general to an increase of 6 per cent. The suspension applies to all increases with the exception of certain rates already reduced vountarily.

The decision permits the continuance of the increase of 10 per cent. in passenger fares, but eliminates the increase on season-ticket rates; the latter is to form the subject of a separate hearing.

(*See editorial note, page* 602)

New U.S.A. Stock for Troops

In a determined endeavour to cope with present rolling-stock shortage, and to handle the constantly increasing movement of troops, the Defense Plant Corporation of the United States, a subsidiary of the Reconstruction Finance Corporation and the War Production Board, is to undertake the construction of 1,200 sleeping cars and 400 kitchen cars, which will be built by selected firms and turned out, from July 15 onwards, at the rate of 15 a day. The sleeping car designs have been approved by the Association of American Railroads, and the cars will be operated in the Pullman Company's fleet now assigned to troop transport; they will release a large number of day coaches. Similarly, the kitchen cars will release the baggage cars that are now used as mess cars, and are supplied with equipment and staffed by the Army. The new vehicles are to be of considerably smaller dimensions than standard American main-line stock, as they will be only 50½ ft. long and 9 ft. wide. Each sleeping car will have 30 single beds arranged transversely in three tiers, and will be on convertible lines, the middle and upper berths folding back out of use when the cars are travelling in the daytime. They will have standard passenger car bogies, underframes, couplers, and brakes, with, of course, heating equipment and toilet facilities; the car bodies will be insulated, but no decision has yet been reached as to whether or not air conditioning will be installed. The kitchen cars will be equipped with showers, but will contain no sleeping accommodation; they will be provided with all necessary cooking appliances, ice-boxes, and cupboard accommodation, and will all have Army personnel assigned to them permanently for meal service. The restricted dimensions of these vehicles have doubtless been settled with a view to making them usable in other countries, if desired.

Making U.S.A. Sports Travel "Tough"

The "Kentucky Derby," the annual American sporting event which normally attracts to Louisville, Kentucky, from long distances an attendance equal to that of its famous counterpart in this country, was this year the subject of special attention on the part of the Office of Defense Transportation. Director Eastman of the O.D.T. gave his "qualified" approval to the holding of this fixture on May 1, but imposed restrictions to deter the attendance of patrons other than those resident in the vicinity of Louisville. The eight railways serving Louisville made no reservations for travel to that city between April 26 and May 1 before the first of those dates, excepting passengers on *bona fide* war business, and were instructed not to operate any special trains or additional cars; also the motorbus lines serving Louisville made no additions to their services beyond those normally provided at weekends. The track management had already accepted many reservations of boxes by patrons not resident in the Louisville area, and to each of these Mr. Eastman sent a letter asking for co-operation in limiting non-essential travel.

Another recent ruling of the O.D.T. concerns circus trains. A general permit, No. ODT 24-6, effective from March 26, has been issued by the Office of Defense Transportation permitting the railways to handle trains consisting of cars owned by or leased to circus companies, provided that the circus itineraries have been approved by the O.D.T.; that the trains concerned give preference to all other train movements; and that the railways are not responsible for any delays so caused to the circus movements.

C.N.R. Rolling Stock

To overcome wartime difficulties in obtaining new passenger equipment, the Canadian National Railways purchased from the Pullman Company (U.S.A.) 167 all-steel units of various types, 154 of which have been modernised and converted into colonist cars (57), first class coaches (89), and cafe cars (8); and the remaining 13 renovated as sleeping and bedroom cars. These have formed an important contribution to the wartime passenger transport equipment of the C.N.R. system, particularly for dealing with military traffic. With the exception of 13 cars converted in the Pullman Company's shops at Chicago for service on Grand Trunk Western lines, the work of conversion was effected at the C.N.R. car shops at London, Ontario; Port Huron, Michigan; and Transcona and Fort Rouge at Winnipeg. The last car was recently completed.

Staff and Labour

Railway Wages

A further meeting was held in connection with the unions' claim for an all-round increase of 10s. a week, when the Railway Executive Committee met the full Executive Committees of the N.U.R., A.S.L.E. & F., and R.C.A. in London on June 8. Previous discussions had been between the Staff Committee of the Railway Executive Committee and the trade unions. The meeting, which lasted for 4 hr., was presided over by Sir James Milne. The official announcement.

"The Railway Executive Committee met the representatives of the N.U.R., A.S.L.E. & F., and R.C.A. in London today for the purpose of further discussing applications made by the trade unions for an increase in the pay of salaried and conciliation grades. After discussion the representatives of the trade unions undertook to consider the position and communicate with the R.E.C." A joint meeting of the executive committees of the three trade unions was held after the meeting, and it was decided to ask the Minister of War Transport to meet representatives.

Leave in Lieu of Bank Holidays

The Chairman of the Railway Staff National Tribunal has recently given a decision (No. 24) on a claim by the N.U.R. that, under the terms of Railway Staff National Tribunal Decision No. 3, a man rostered for two turns of duty commencing on Whit Monday or August Bank Holiday (or the equivalent days in Scotland) who is booked off duty with pay for one of the turns, but works the other turn, shall receive a further day's leave with pay in lieu of the turn so worked. The claim was submitted as a question of interpretation of R.S.N.T. Decision No. 3 dated August 9, 1937. Decision No. 3 of Railway Staff National Tribunal awarded, amongst other things, that "All staff, whether in the conciliation or the salaried grades, who are required to work on Whit Monday or August Bank Holiday (or in Scotland two other days as may be agreed between the railway companies and the unions), shall receive a day off with pay at ordinary rate in lieu of each day so worked, at a time to be chosen, within the customary railway staff holiday season, by the railway companies."

The facts of the case on which the present claim was raised show that a workman was originally rostered for two turns of duty on Whit Monday, one commencing at 2.45 a.m. and the other at 11.40 p.m. The workman was booked off duty with pay for the first turn, but signed on for the second turn of duty at 11.40 p.m. The union contended that the workman should, in virtue of the terms of Decision No. 3 of Railway Staff National Tribunal, be given a day's leave with pay in lieu of the turn commencing at 11.40 p.m. This contention the railway companies opposed.

The Chairman of the tribunal in his decision stated that having given careful consideration to the circumstances out of which the present claim has arisen, to the contentions of the parties, and to the terms of the relevant awarding paragraph of Decision No. 3 of Railway Staff National Tribunal, he finds, as a matter of interpretation, in favour of the claim.

Passenger Road Transport Wages

As announced in our issue of May 21, 1943, the claims for increases in the wages of workpeople employed in the Road Passenger Industry were rejected by the arbitration tribunal to which they were referred.

The tribunal, which consisted of Mr. W. Craig Henderson, K.C. (Chairman), Professor Harold Laski (appointed by the representatives of the employees) and Mr. Humfrey Edmunds (appointed by the representatives of the employers) had three separate claims to consider and three awards have been issued. The claims were briefly as follow :—

(1) On behalf of the employees of the London Passenger Transport Board for—
- (*a*) an increase of 12s. a week in the war wage, or, alternatively,
- (*b*) an increase of 8s. a week plus payment at the rate of time and a half for Sunday labour.

(2) On behalf of the employees covered by the National Joint Industrial Council for the Road Passenger Industry representing the municipal transport undertakings and the trade unions for—
- (*a*) an increase of 12s. a week in the war wage, or, alternatively,
- (*b*) an increase of 8s. a week plus changes in the payment for spreadovers and Sunday labour.

(3) On behalf of the employees covered by the National Council for the Omnibus Industry representing the provincial company-owned undertakings and the trade unions for—
- (*a*) an increase of 15s. a week in the war wage, or, alternatively,
- (*b*) an increase of 8s. a week plus changes in the payment for spreadovers, overtime, and Sunday labour.

In support of all three claims it was contended that the cost of living had increased and the standard of living of employees had deteriorated; the work of all grades had increased in intensity, particularly since the cuts in service were made, with consequent increase in the loading of vehicles in service. In addition it was contended in the case of the claims affecting the two councils that there had been deterioration in the condition of vehicles and difficulty in obtaining suitable spares; the revenue of the undertakings had increased and the workers were entitled to share in that prosperity. In all three cases the alternative claim for a smaller increase in the war wage but with changes in conditions of service was stressed as being the more appropriate.

The tribunal states in its awards that although many comparisons were made in the argument for the employees between present conditions and pre-war conditions, the tribunal is satisfied that its sole concern is with changes (if any) which have occurred since the date of the last award. It does not find that there has been any increase in the cost of living since the last award and states that any fall in the standard of living, as distinct from the rise in cost of basic necessities, is not, in the opinion of the tribunal, a ground for an increase in the war wage. It is a misfortune shared by the whole community as an inevitable result of the war. The tribunal also considers that proof of increased earnings of undertakings is not a ground for increase in a war wage. Increased intensity of traffic under war conditions resulting in heavy loading of vehicles was relied on in support of former claims, and such matters were taken into consideration in the last two awards. Although the tribunal finds that there has been since the date of the last award a further small increase in the average loading (rather greater than in the case of the services of the municipalities and the London Passenger Transport Board), the tribunal also finds that since that date the work of drivers has been lightened by the large reduction in the numbers of stops and starts and in the volume of vehicular traffic on the roads, the hours of driving in the blackout have been reduced and the outside lighting has been improved. For conductors the reduction in the number of stops has reduced the amount of attention required to be given to the entrance platform. They also benefit by the reduction in hours of working in the blackout and the revised regulations relating to internal lighting of the vehicles are increasingly producing an improvement in their position, though this advantage is not at present so fully installed as in the case of the services of the municipalities and the London Passenger Transport Board. As to shed-staff, there has been no evidence to satisfy the tribunal that any worsening of the conditions of their service has occurred since the last award.

After the rejection of the claims by the tribunal stoppages of work occurred in several parts of the country and fresh claims have been formulated by the trade unions concerned for submission to the employers.

Railway Wartime Revenues

Since 1939, when the Government took control of the main-line railways, various minor railways, and the undertaking of the London Passenger Transport Board, the issue of detailed statistics has been suspended, and the figures which are published from time to time in White Papers and otherwise, are not always readily comparable, nor easily accessible in collated form. We therefore reproduce, for reference, the following useful table recently prepared by the British Railways Press Office showing the receipts and expenditure of the main-line railways and joint lines in respect of railway working, and of the London Passenger Transport Board in respect of railway and road services :—

	1940 £	1941 £	1942 £
Receipts—			
Passenger	104,785,000	132,106,000	163,544,000
Freight	140,498,000	158,826,000	176,658,000
Miscellaneous	2,709,000	2,903,000	3,285,000
Total	247,992,000	293,835,000	383,487,000
Expenditure	203,480,000	226,636,000	251,715,000
Net receipts	44,512,000	67,199,000	91,772,000
Other items of receipts and expenditure included in the pool (net) (Steamships, docks, hotels, collection and delivery of goods, rents, interest, and other items)	(Dr.) 1,749,000	(Dr.) 2,074,000	(Dr.) 2,646,000
Net revenue of the pool	42,763,000	65,125,000	89,126,000
Net revenue accruing to the railways and London Transport (including non-pool items)	43,419,000	44,606,600	44,977,000
Standard revenue	56,900,000	56,900,000	56,900,000
Capital receipts	1,211,400,000	1,211,400,000	1,211,400,000
	Per cent.	Per cent.	Per cent.
Net revenue (accruing to the railways and London Transport) percentage of capital receipts	3·58	3·68	3·71

Questions in Parliament

Railways and Holiday Travel

Mr. Ellis Smith (Stoke—Lab.) on June 9 asked the Joint Parliamentary Secretary to the Ministry of War Transport (1) what arrangements were to be made to enable those employed in the essential war services and the armed forces to have preference in travelling from North Staffordshire and Lancashire to Blackpool, Southport and Morecambe during the holiday period for each locality? and (2) whether he could make a full statement for the guidance of all concerned in reference to reasonable travelling at the holiday period and travel of a restricted kind for stay-at-home holidays and if any system of rationing travelling to enable those who greatly needed a change was to be tried?

Mr. P. J. Noel-Baker (Joint Parliamentary Secretary Ministry of War Transport): As Mr. Ellis Smith may be aware, the railways are now carrying about 50 per cent. more freight traffic and 50 per cent. more passenger traffic than before the war, and passenger-train mileage has been reduced by about 30 per cent. Thus, passenger trains are carrying twice the load they carried in 1939. There has been a particularly heavy increase in the journeys made by Service personnel; in the last twelve months for which I have the figures, the increase was 24 per cent. This is especially true of long-distance travel; of journeys of between 100 and 200 miles, 60 per cent. are made by members of the Forces; of journeys of over 200 miles, the figure is more than 80 per cent. In view of this great increase of essential travel, and in view of the great strain under which the railways are already working, it is not possible to grant additional trains for holiday travel, however desirable that may be. The railways have, therefore, been instructed that their passenger-train mileage this summer must not exceed the mileage they were allowed last summer, and that for Wakes Weeks and similar holiday occasions, there must be no more trains from any town to any holiday resort than there were on the same occasion a year ago. Nor is it possible to provide for holiday travel by such schemes of rationing and priority as Mr. Smith suggests. The Minister of War Transport has repeatedly and exhaustively considered these proposals; he has always come to the conclusion that they would cause great inconvenience to travellers, that they would require a cumbrous and costly administrative machine, and that the disadvantages would much outweigh the advantages which they might have. On some long distance services, the increase of essential travel has caused constant and serious overcrowding. The Minister of War Transport is now considering whether on these services a few additional trains can be allowed, on the clear understanding that, if war conditions so require, they will be taken off again without warning. For the rest, however, the Government is obliged to ask the public to accept the same restrictions which were in force last year. I am confident that those who are now considering where they will spend their holidays will decide not to travel by rail, but to leave the limited space which is available to those who, in the interest of the war effort, require it most. I gratefully acknowledge the help of those who have organised programmes for holidays at home. The shortage of rubber and fuel makes it impossible to relax the general restrictions on road transport imposed in recent months, but I hope that, where vehicles and personnel permit, something may be done in normal off-peak hours to help workers to enjoy the entertainments which these programmes provide.

Mr. Ellis Smith: We appreciate the difficulties arising out of transport, but is the Parliamentary Secretary aware that those who have now been engaged on manual work and essential services for four years are beginning to feel the strain and that the managements in industry and the representatives of the workpeople desire that the workpeople should be given some relaxation, and, if that is so, should it not be done on an organised basis; and is he also aware that this will have an effect on production?

Mr. Noel-Baker: Yes, sir, I am constantly aware of the increased and increasing strain to which war workers are exposed, and Mr. Ellis Smith will understand that I make a statement like this only with the utmost reluctance and regret, but I am sure that the workers themselves will share our view, that, in this year more than in any previous year, it is essential that train capacity should be reserved for troop movements and for the movement of war material, and that the war effort must come first.

Mr. Smith: Will the Minister consider the advisability of approaching the Railway Executive with a view to seeing that those who have been engaged for so long in industrial centres should receive preference where possible?

Mr. Noel-Baker: That is a very difficult question, and I would not like to make an unconsidered answer, but, broadly speaking, the arrangements will be the same as last year, and I hope that they will give an equally satisfactory result.

Sir Ralph Glyn (Abingdon—C.): Will the Parliamentary Secretary consider, in consultation with the Minister of Production, the publication of the statement he has just made in factories throughout the country, because if excursions are organised, great disappointment will be caused to those who can go if no arrangements are made for them?

Mr. Noel-Baker: I will consider that valuable suggestion.

Mr. G. Buchanan (Glasgow, Gorbals—Lab.): Will the Parliamentary Secretary consider providing extra accommodation on long-distance trains, particularly for Service men; and is he aware of the crowded accommodation on trains between London and Glasgow and the North of Scotland? So many of these men have to travel, and cannot he do something to ease their problem; cannot he reserve extra accommodation for those who have to travel on service?

Mr. Noel-Baker: I would not like to promise that we could add coaches to existing trains, because nearly every locomotive is pulling the maximum number of coaches it can take, but when Mr. Buchanan reads the statement he will see on which long-distance services we propose, by the addition of a few extra trains, to relieve the very great congestion which now exists.

Sir Archibald Southby (Epsom—C.): Will the Parliamentary Secretary bear in mind that the term "workers" includes 99 per cent. of the people in this country and especially the very large number of people who serve in the Forces?

Mr. Noel-Baker: I will bear that in mind. It also includes the railway train crews, who, perhaps of all workers, have been subject to the greatest strain, and who during the next winter may have a greater strain than ever before.

Mr. Rhys Davies (Westhoughton—Lab.): May I ask the Parliamentary Secretary whether the department will bear in mind the depressing psychological effect it will have upon the millions of workpeople in Lancashire if they are not able to spend a few days at Blackpool?

Mr. Noel-Baker: I have said in my statement already that the arrangements that were made last year will be in force again this year, but I do not believe that any worker will be psychologically depressed by the fact that we want to keep the trains to promote the war effort.

Mr. D. N. Pritt (Hammersmith North—Lab.): Will the Parliamentary Secretary consider whether, by taking off a sleeping car which holds only 12 or 14 people, he could not make room for a large number of additional passengers?

Mr. Noel-Baker: We have already cut sleeping cars to the bone.

(*See editorial note, page* 601).

Accident Claim against Railway

Mr. Rhys Davies (Westhoughton—Lab.) on June 2 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware that Mr. G. B. Swift, of West Thurrock, fell into the Thames from a ferry-boat owned by the London Midland & Scottish Railway Company and injured himself; that the company admitted that this accident occurred through the negligence of one of its officials, but disclaimed liability for damages or compensation because of conditions attached to the workman's ticket entitling Swift to travel; and if he would take steps to remove the legal disability suffered by Swift and others similarly affected.

Mr. Noel-Baker, in a written answer, stated: I am informed that the defence filed by the company to the claim by Mr. Swift was a denial of liability, and that the action was discontinued before the hearing took place. The company then offered to make a payment *ex gratia* of £5 which was rejected by the claimant, who sought a sum of £10 and a substantial contribution to his costs. I think that the case was dealt with by the company on its merits and I am not satisfied that I should be justified in intervening as suggested by Mr. Rhys Davies.

Railway Train in Bomb Crater

Mr. W. Thorne (Plaistow—Lab.) on June 10 asked the Parliamentary Secretary to the Ministry of War Transport if he could give any information in connection with the train that plunged into a bomb crater, at a place of which he had been informed; and how many people were killed and injured.

Mr. Noel-Baker: I regret that this accident caused the death of the driver and fireman of the locomotive involved, and injury to two other railway servants and to three passengers. I understand that authority had been given to the signalman to allow the train to proceed at slow speed. This was an error of judgment. The examination of the line had already been begun, and until this examination was complete, the train ought to have been held. Since the accident happened, the regulations have been amplified to guard against a similar occurrence in future. I should like to take this opportunity of expressing my deep sympathy with the families of the two railwaymen who lost their lives in the performance of their duty.

Mr. Thorne: Was not this danger known at Liverpool Street Station before the train started?

Mr. Noel-Baker: I would not like to say that it was known at Liverpool Street Station before the train started, but I am clear that the regulations were not quite strict enough for avoiding accidents of this kind, and they have been tightened up.

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Notes and News

Railway Accident in New Zealand.—Thirteen persons are believed to have been killed, and about forty injured, when a train was derailed near Hyde, 65 miles from Dunedin, on June 4.

Transandine Railway.—It is reported that the sum of 3,500,000 pesos, which, as recorded in our April 30 issue, is to be spent by the Argentine Government on the reconstruction of the Transandine Railway, is to be increased by 2,500,000 pesos.

South African Railway Wage Increase.—Reuters states that all South African railway employees earning less than £735 a year are to receive a 5 per cent. increase in pay to compensate for their extra responsibilities under war conditions.

Istanbul Trams.—The report of the municipally-owned Istanbul trams for 1942 states that, despite the lower number of electric cars and trailers in service, the number of passengers conveyed rose to more than 83,000,000, exceeding the 1941 total by about 2,600,000. The rolling stock in service was reduced as a result of the impossibility of effecting repairs, in view of shortage of materials.

Argentine Fuel Proposals.—The recent campaign of the Argentine Government for encouraging industrial concerns to use linseed oil for fuel has culminated in the Minister of Agriculture informing farmers that there is a possibility of 1,000,000 tons of linseed being converted into fuel oil for 1944 requirements if the war continues. The Minister is not expecting any carry-over from the 1942-43 linseed crop.

Swedish Longest Concrete Bridge.—A bridge which is reported to have the longest concrete span in the world has been constructed in Sweden. The span is 886 ft. long, and the total length of the bridge is 4,900 yds., with height above water of 131 ft. The bridge crosses the Aangerman River at Sando in northern Sweden, thus eliminating the last ferry on the coast highway between Stockholm and Haparanda at the Finnish frontier.

Road Accidents in April, 1943.—The return issued by the Minister of War Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of April last shows 396 deaths (compared with 565 in April, 1942); 2,221 seriously injured (compared with 3,032 in April, 1942); and 6,137 slightly injured (compared with 8,143 in April, 1942). The number of deaths was smaller than in any month for the last ten years.

Churchill Machine Tool Co. Ltd.—For 1942 the net profit after making provision for depreciation, income tax, E.P.T., war damage contribution, directors' fees and reserves, was £58,066 (£57,686), and the amount brought in was £45,469, making £103,535. The final dividend on the ordinary stock is 15 per cent., making 30 per cent., less tax, for the year, the same as for 1941. A sum of £20,000 is again transferred to war contingencies reserve, leaving £40,403 to be carried forward.

C.N.R. Oil Drilling.—Drilling by the Canadian National Railways in the Vermilion oil fields in Alberta, 130 miles east of Edmonton, will begin as soon as weather conditions are suitable, according to a recent statement by Mr. R. C. Vaughan, President of the C.N.R. Equipment has been moved to the fields and a cleaning plant to prepare oil for locomotive use will be erected at the drilling sites. The amount of money to be spent on the drilling projects, said Mr. Vaughan, "depends on what we strike."

The Chicago Underground.—It appears that the formal inauguration of traffic on the State Street line of the Chicago Underground Railway, on March 29 last, has not yet been followed by the institution of a regular service. This line is 4·9 miles in length, and members of the general public have been allowed to travel on the "exhibition" train services as a reward for buying War Bonds. It seems that difficulties in securing equipment provide the principal reason for the delay in beginning regular working.

Hants & Dorset Motor Services Limited.—This subsidiary of the Southern Railway Company and of Tilling Motor Services Limited earned in the year to March 31, 1943, a total income of £420,586 (£408,055). Gross expenditure was £355,825 (£342,892), leaving a profit of £64,761. Preference dividend takes £9,750, and the dividend on the ordinary shares for the year is again 9 per cent., tax free, requiring £49,500. A transfer of £5,000 is again made to general reserve, leaving £24,102 (£23,591) to be carried forward.

Beira Alta Railway Company.—The purchase of shares of this company by the Portuguese Government, which was referred to in our May 28 issue, is stated to have been arranged for the purpose of preventing their sale to a Spanish group, and not as a result of the recent Law relating to the nationalisation of foreign-owned public-utility undertakings. Eighty-five per cent. of the debentures and ordinary stock of the company, which had a capital of fr. (French) 10,000,000, have been acquired by the Portuguese Government and Portuguese railways.

Wellington, Grey & Bruce Railway Company.—Estimated earnings for the half-year ending June 30, 1943, applicable to meet outstanding interest on the 7 per cent. bonds redeemed up to and including January 1, 1942, will admit of the payment of £6 18s. 5d. on each £100 bond. This payment will be applied as follows: 15s. 2d. balance due for Coupon No. 125, due January 1, 1933; £3 10s. full payment of Coupon No. 126, due July 1, 1933; £2 13s. 3d. on account of Coupon No. 127, due January 1, 1934, and will be made on and after July 1 next at the offices of the Canadian National Railway Company, 42-45, New Broad Street, E.C.2.

Post-war Exports and Salesmanship.—Mr. Harcourt Johnstone, Parliamentary Secretary, Department of Overseas Trade, in a speech recently said that openings for United Kingdom exports were likely to be abundant immediately after the war, although there might be payment difficulties, and much no doubt would have to be provided as pure relief. There would be a pent up demand for consumer goods, and also much demand for capital goods for the reconstruction of Europe and for development schemes postponed due to the war. That would coincide with a similar demand from the home market, and it seemed inevitable that a degree of control over manufacturers in the United Kingdom, to ensure that an adequate proportion of our capacity was devoted to manufacturing for export, would be necessary. We should need to improve our sales methods, which frequently in the past had been the subject of criticism. Great care would be required in the selection of personnel to represent United Kingdom firms overseas, who, in addition to technical knowledge of the products they were selling, should possess energy, initiative, and imagination.

Railway Accident in India.—Reuters reports that 50 people have been killed, and 100 injured, in an accident to a Bombay-Calcutta mail train.

Ransomes & Rapier Limited.—Trading profit for the year 1942 was £195,798 (£219,363). After charging £71,038

British and Irish Railway Stocks and Shares

Stocks	Highest 1942	Lowest 1942	Prices June 11, 1943	Prices Rise/Fall
G.W.R.				
Cons. Ord.	58	39	62	+ ½
5% Con. Pref. ...	115½	105½	114	—
5% Red. Pref. (1950)	109½	103½	108	—
5% Rt. Charge ...	133½	123½	127½	— 1½
5% Cons. Guar. ...	130½	121½	124½	— 2
4% Deb.	117	105	110	—
4½% Deb.	118	108	111½	—
4½% Deb.	125	113	119½	—
5% Deb.	137	127	131	—
2½ Deb.	77	70	76	—
L.M.S.R.				
Ord.	28½	16⅜	32½	+ ¾
4% Pref. (1923) ...	63½	50½	62½	—
4% Pref.	76½	67½	76	—
5% Red. Pref. (1955)	103½	94½	103½§	— 1
4% Guar.	104½	97½	100	— ½
4% Deb.	106½	101½	104§	— 1
5% Red. Deb. (1952)	111	107½	109½	—
L.N.E.R.				
5% Pref. Ord. ...	9¾	2⅞	10⅜	— ⅛
Def. Ord.	5	1⅜	4½	—
4% First. Pref. ...	62	49½	62½	—
4% Second Pref. ...	32½	18½	34	—
5% Red. Pref. (1955)	95½	79	97½	—
4% First Guar. ...	98	88	97½	+ ½
4% Second Guar. ...	90	78	90	—
3% Deb.	85	76	79§	— 1
4% Deb.	106⅜	100½	103§	— 1
5% Red. Deb. (1947)	106	103	104	— ½
4½% Sinking Fund Red. Deb.	106	102½	105½§	— ½
SOUTHERN				
Pref. Ord.	77	61½	75	—
Def. Ord.	23½	14⅜	24⅜	+ ¼
5% Pref.	112½	104	112	—
5% Red. Pref. (1964)	110⅜	105½	112½	—
5% Guar. Pref. ...	131	121½	124½	— 2
5% Red. Guar. Pref. (1957)	115½	109½	114½	—
4% Deb.	116	104½	107§	— 1
5% Deb.	134	125½	129½§	— 2
4% Red. Deb. (1962-67)	110⅜	106	107½§	— 1
4% Red. Deb. (1970-80)	111	106½	107½§	— 1
FORTH BRIDGE				
4% Deb.	109 5/16	108	106	—
4% Guar.	105½	100	104½	—
L.P.T.B.				
4½% "A"	122½	111	116½	—
5% "A"	131½	122	126½	—
3% Guar. (1967-72)	95⅜	97⅞	99	—
5% "B"	121	111½	116½	—
"C"	56½	38	61½	—
MERSEY				
Ord.	27½	20½	31½	+ ½
3% Perp. Pref. ...	61⅛	56½	61	—
4% Perp. Deb. ...	102⅜	99⅜	104	—
% Perp. Deb. ...	80⅜	76	79	—
IRELAND				
BELFAST & C.D.				
Ord.	9	4	9	—
G. NORTHERN				
Ord.	29⅜	12½	19	—
G. SOUTHERN				
Ord.	25	10	10	—
Pref.	29	12⅜	14	+ 1
Guar.	53	35⅜	30½	—
Deb.	71½	55½	55½	—

§ ex-dividend

OFFICIAL NOTICES

Canadian National Railway Company

WELLINGTON GREY & BRUCE RAILWAY COMPANY, 7 PER CENT. BONDS.

NOTICE IS HEREBY GIVEN that the estimated earnings of the Wellington Grey & Bruce Railway Company for the half-year ending 30th June, 1943, applicable to meet outstanding interest on the above Bonds redeemed up to and including 1st January, 1942, will admit of the payment of £6 18s. 5d. per £100 Bond, and that this payment will be applied as follows, viz. :—

£0 15s. 2d. balance due for Coupon No. 125 due 1st January, 1933,

£3 10s. 0d. full payment of Coupon No. 126 due 1st July, 1933,

£2 13s. 3d. on account of Coupon No. 127, due 1st January, 1934,

and will be made on and after 1st July, 1943, at the offices of the Canadian National Railway Company, Orient House, 42-45, New Broad Street, London, E.C.2, England.

The coupons must be left three clear days for examination.

A. H. CONEYBEARE,
European Secretary & Treasurer.

London, 12th June, 1943.

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(£103,088) for taxation, £28,861 (£24,034) for maintenance, £19,597 (£19,820) for depreciation, £8,067 (£14,771) for A.R.P., and making provision for debenture interest and other expenses, there was a net profit of £26,008 (£19,938). Allocations are made of £5,000 (same) to reserve and of £2,292 (£3,645) for war damage. Final dividend on the ordinary shares is 4 per cent. tax free (3 per cent. tax free), making 6 per cent. tax free for the year, against 5 per cent. tax free for 1941. The carry-forward is £3,483 (£1,117).

John Thompson Engineering Co. Ltd.—A final dividend of 12½ per cent. together with a bonus of 5 per cent. (both less income tax) is recommended to be paid on the ordinary shares making with the interim dividend of 5 per cent. already paid, a total dividend of 17½ per cent. actual, and bonus of 5 per cent. for the year 1942.

Trans-Canada Air Lines.—During the first three months of 1943, the number of passengers carried by Trans-Canada Air Lines increased by more than 9,000 compared with the same period of 1942; the amount of mail was more than doubled; and of express, more than tripled. More passengers were carried last March (10,887) than in any month in the history of the lines.

New Railway Convalescent Home.—The trustees of the Railway Convalescent Homes recently bought the Bedford Hotel at Buxton. The whole cost of the purchase has been borne by the Railway Convalescent Homes. The hotel has 45 bedrooms, each with hot and cold water, two large lounges and some smaller lounges. The dining room has accommodation for 120 diners. The purchase includes all furnishings and an annexe, which will be used for staff. It is not intended to open the home to patients until after the war; it is at present being let to the previous owners who are continuing to run it as a hotel.

International Railways of Central America.—The directors have decided to redeem on August 1 $1,000,000 first lien and refunding mortgage 6½ per cent. gold bonds. There are outstanding $4,519,000 of this issue due to mature on February 1, 1947. The directors consider that a policy of reducing the funded debt should be pursued and therefore no dividends are being paid on the preferred stock. Reasons given for this policy are :—(1) Uncertainty with respect to the volume of future traffic, (2) war-time shipping situation, (3) possibility of increasing costs for all items of operating expenses, and (4) uncertain nature of the favourable current earnings.

Maidstone & District Motor Services Limited.—This subsidiary of the Southern Railway Company and of B.E.T. Omnibus Services Limited (jointly) shows in a preliminary statement for the year to March 31, 1943, that after providing £277,217 (£253,052) for income tax and E.P.T. and £74,980 (£75,484) for depreciation and renewals, and adding £35,357 brought in, it is proposed to place £20,000 (same) to reserve, and to pay a final dividend of 5 per cent. and a bonus of 1¼ per cent. on the ordinary shares, making a total distribution of 11¼ per cent. (same) for the year, and to carry forward £37,352.

Dunlop Rubber Co. Ltd.—The preliminary statement shows that the net profit for the year 1942, subject to final audit, amounts to £2,433,307, which with the addition of £622,839 brought forward makes available for appropriation £3,056,146. The directors have transferred as provision for E.P.T. £827,368; to income tax liability for 1942-43, £910,587, less reserve provided in 1941 of £650,000, net £260,587; to income tax reserve towards the 1943-44 liability, £700,000; and to contingencies reserve, £100,000. Preference dividends paid for 1942 amount to £193,750, and the directors recommend a dividend on the ordinary stock at the rate of 8 per cent. less tax at 9s. 7·1276d., which will absorb £346,855, leaving £627 to be carried forward.

Babcock & Wilcox Limited.—The report for the year 1942 states that the balance available for appropriation was £623,443, and the balance brought forward was £105,709, making £729,152. Provision for taxation is £370,000, and after payment of interim dividends less tax on the 6 per cent. preference and 5 per cent. second preference, and of 4 per cent. on the ordinary stock, there is a balance of £266,430, which enables the directors to recommend the usual final preference dividends and a final dividend of 6 per cent. on the ordinary stock (making 10 per cent. for the year) less tax, and a bonus of 1 per cent. on the ordinary stock, less tax, carrying forward £107,063. The amount of unexecuted orders on the company's books at December 31, 1942, remains at a satisfactorily high level.

Contracts and Tenders

The following orders have been placed recently by the Egyptian State Railways :—

Turton Bros. & Matthews Ltd. : Springs.
General Electric Co. Ltd. : Motor generators, sets and dynamotors, condensers.
H. J. Skelton & Co. Ltd. ; Steel slabs.
Pilkington Bros. Ltd. : Glasses.
British Metallic Packings Co. (1933) Ltd. : I.R. fittings.
Metropolitan-Cammell Carriage & Wagon Co. Ltd. : Screw couplings.
R. L. Ross & Co. Ltd. : Valves.
Whitelegg & Rogers Limited : Grease gun.
Davies & Metcalfe Limited : Injectors.
Consolidated Brake & Engineering Co. Ltd. : Cylinders.
Armstrong Oiler Co. Ltd. : Lubricating pads.
Vacuum Brake Co. Ltd. : Valves and springs.
Hulburd Patents Limited : Joints.
Robt. Hyde & Son Ltd. : C.A. Axles.
Howell & Co. Ltd. : Steel pipes.
Ericcson Telephones Limited : Switchboard spares.
British Insulated Cables Limited : Cable switchboard.
Boulton & Paul Limited : Wire netting.
Bullers Limited : Insulators.
No. 1 T.N. Stores : Tubes, elbows, tees.
Chloride Electrical Storage Co. Ltd. : Plates and separators.
Imperial Chemical Industries Limited : Spare pots for cassel cyanide furnace.
North British Locomotive Co. Ltd. : Slide bars.
Durex Abrasives Limited : Abrasive paper.

The Bedford Hotel, Buxton, which has been bought by the trustees of the Railway Convalescent Homes. The hotel, which will be opened to patients after the war, is being leased to the previous owners and remains a hotel for the present

Railway Stock Market

Although there was no appreciable improvement in the volume of business, sentiment in the stock and share markets tended to respond to the encouraging trend of the war news. The undertone of home railways was better; the tendency in the junior stocks increased hopes that they are likely to recover strongly in price when there is a return of active conditions to Stock Exchange markets. Yield considerations should sooner or later prove an important factor, and, moreover, hopeful views are gaining ground as to the post-war position. Incidentally, it appears that the possibility, mentioned in these notes, of the existing rental remaining in force until there is final agreement after the war on transport organisation, is more widely recognised. In any case the rental agreement is scheduled to run until at least one year after the termination of the war. Whereas there have been moderate gains among junior stocks, prior changes remained around the same levels as a week ago. Sentiment in the latter was influenced to some extent by the easier tone in gilt-edged; but as time proceeds, increased demand for home railway prior. stocks seems likely to develop, because yields are quite attractive when judged by the first class investment merits of these securities. Before long interim dividend considerations may perhaps draw more attention to the junior stocks and their large yields, although the main factor seems likely to be the general trend of the stock markets, and as mentioned here before, no changes are generally expected in the interim payments.

Argentine railway securities remained more active, and in some instances more than recovered an earlier reaction. Sentiment has reflected hopes attaching to political developments in the Argentine and the Foreign Minister's statement on external obligations. Moreover, it is being pointed out that sooner or later the railways must receive more equitable treatment in the matter of exchange, bearing in mind the factors indicating continued improvement in the sterling and dollar value of the peso. Due to the firmness with which they are held and willingness to take a long view, numerous stocks of the Argentine railways are not in large supply, and the better levels ruling recently have led to very little selling. Consequently, prices have again been inclined to respond strongly to relatively moderate demand.

Compared with a week ago, Great Western ordinary has improved from 61⅜ to 62¼ at the time of writing, but as in the case of the other home railways, there were few movements among the senior stocks; the 4 per cent. debentures were again 110, and the 5 per cent. preference 113½. As to L.M.S.R. ordinary there has been a recovery from 32⅛ to 32⅜, but on balance the senior preference lost half-a-point to 76; the 1923 preference was maintained at 62½, as was the guaranteed stock at 100½. There were few movements among L.N.E.R. stocks, apart from a rally from 34 to 34¼ in the second preference; the first guaranteed kept at 97½, and the first preference has remained at 62½ at the time of writing. There was little increase of speculative activity in this railway's preferred and deferred stocks. Southern deferred was fractionally higher at 24¾, but the preferred at 74¾ was unchanged on balance. Southern deferred tends to attract attention as the lowest-priced means, among dividend-paying stocks, of participating in the trend of the home railway market. Southern 4 per cent. debentures and 5 per cent. preference were unchanged at 107 and 111½ respectively. Elsewhere, London Transport "C" at 61½ was again unchanged on balance.

Among further gains recorded in Argentine railway securities, B.A. Gt. Southern was 14, compared with 13½ a week ago. B.A. Western ordinary at 13½ was unchanged on balance, an earlier decline to 13 having been regained. Entre Rios stocks were better, while more attention was given to those of the Central Argentine. Among the latter the ordinary was 9¾, the 4½ per cent. preference moved up to 20, and the 4 per cent. debentures were 51. Elsewhere, Antofogasta ordinary and United of Havana debentures were better. San Paulo remained at 69. There were again only small movements in Canadian Pacifics.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ending	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1941/2	No. of Weeks	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Totals 1941/2	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1942	Prices: Lowest 1942	Prices: June 11 1943	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	6.6.43	26,550	+ 9,710	23	623,920	481,750	+ 142,170	Ord. Stk.	14	7⅞	14	Nil
	Argentine North Eastern ...	753	5.6.43	14,154	+ 1,716	49	607,068	531,750	+ 75,318	,,	6½	3	6½	Nil
	Bolivar	174	May, 1943	5,665	+ 1,060	20	27,546	23,063	+ 4,483	6 p.c. Deb.	19⅜	10	20¼	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	20½	9	22½	Nil
	Buenos Ayres & Pacific ...	2,807	5.6.43	92,100	— 4,200	49	4,878,780	4,306,560	+ 572,220	Ord. Stk.	7⅞	4	7	Nil
	Buenos Ayres Great Southern	5,080	5.6.43	142,440	— 3,240	49	7,867,260	7,184,340	+ 682,920	Ord. Stk.	12½	7⅛	14	Nil
	Buenos Ayres Western ...	1,930	5.6.43	49,440	— 8,580	49	2,643,960	2,533,680	+ 110,280	,,	12⅝	6	13½	Nil
	Central Argentine	3,700	5.6.43	126,408	+ 19,236	49	6,422,076	5,167,614	+ 1,254,462	,,	9½	4 1/16	10	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	3⅜	2½	4	Nil
	Cent. Uruguay of M. Video...	972	5.6.43	37,383	+ 5,133	49	1,451,165	1,263,372	+ 187,793	Ord. Stk.	8	4	6½	Nil
	Costa Rica	262	Apr., 1943	18,009	+ 6,463	44	150,966	212,569	— 61,603	Stk.	16½	11	15	Nil
	Dorada	70	Jan., 1943	6,000	+ 3,530	4	—	—	—	1 Mt. Db.	90½	89	94½	6 1/16
	Entre Rios	808	5.6.43	19,584	+ 2,952	49	866,496	762,864	+ 103,632	Ord. Stk.	33	4⅜	7	Nil
	Great Western of Brazil ...	1,030	5.6.43	12,700	+ 4,200	22	354,200	230,700	+ 123,500	Ord. Sh.	9/-	9/-	52/6	Nil
	International of Cl. Amer. ...	794	Apr., 1943	$643,460	+ $92,059	16	$2,665,812	$2,597,912	+ $67,900	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	1⅛	5/3	2	Nil
	La Guaira & Caracas... ...	22⅝	May, 1943	9,520	+ 3,555	22	45,395	32,135	+ 13,260	5 p.c. Deb.	11⅛	5	83½	Nil
	Leopoldina	1,918	5.6.43	31,068	+ 1,799	22	726,589	663,766	+ 62,823	Ord. Stk.	6¾	5⅛	6½	Nil
	Mexican	483	31.5.43	ps. 664,000	+ ps.230,600	20	ps. 7,888,600	ps. 7,446,300	+ ps. 442,300	Ord. Stk.	1	⅞	1¼	Nil
	Midland Uruguay	319	Apr., 1943	17,124	+ 2,741	40	152,738	137,510	+ 15,228	—	—	—	—	—
	Nitrate	382	31.5.43	6,889	+ 2,002	19	62,039	63,766	— 1,727	Ord. Sh.	77/-	3⅛	82/-	Nil
	Paraguay Central	274	4.6.43	$6,392,000	+ $3,340,000	49	$202,729,000	$174,866,000	+ $27,863,000	Pr. Li. Stk.	53	40	52½	11⅛
	Peruvian Corporation ...	1,059	May, 1943	92,939	+ 11,934	44	940,331	833,448	+ 106,883	Pref.	19⅞	5⅛	15½	Nil
	Salvador	100	Mar., 1943	c 140,000	+ c 14,000	38	c 912,000	c 782,172	+ c 1 9,828	—	—	—	—	—
	San Paulo	153½	30.5.43	45,929	+ 8,116	22	810,738	771,822	+ 38,916	Ord. Stk.	59	41	69	2 3/32
	Taltal	160	May, 1943	2,390	— 3,100	25	46,206	49,710	— 3,504	Ord. Sh.	41/-	23/-	32/6	Nil
	United of Havana	1,301	5.6.43	60,751	+ 26,014	49	2,516,217	1,558,276	+ 957,941	Ord. Stk.	8¼	2¼	6½	Nil
	Uruguay Northern	73	Apr., 1943	1,425	+ 431	43	14,074	12,084	+ 1,990	—	—	—	—	—
Canada	Canadian Pacific	17,034	7 6 43	1,067,600	+ 128,200	22	23,374,400	20,897,000	+ 2,477,400	Ord. Stk.	16¾	9 1/16	16	Nil
India†	Barsi Light	202	Jan., 1943	22,440	+ 10,612	43	172,958	135,863	+ 37,095	—	—	—	—	—
	Bengal & North Western ...	2,090	Nov., 1942	264,975	— 33,087	8	449,400	561,082	— 111,682	—	—	—	—	—
	Bengal-Nagpur	3,267	Feb., 1943	932,775	+ 84,975	46	10,031,400	9,111,000	+ 920,400	Ord. Stk.	102½	88	102½	3 5/32
	Madras & Southern Mahratta	2,939	10.3.43	269,025	+ 43,993	47	8,175,789	6,903,392	+ 1,272,397	,,	105¼	87	107½	6 5/32
	Rohilkund & Kumaon ...	571	Nov., 1942	555,750	+ 5,072	8	115,950	99,909	+ 16,041	—	—	—	—	—
	South Indian	2,402	10.1.43	166,555	+ 778	39	4,928,736	4,148,309	+ 780,427	,,	103¾	88⅝	103½	4 11/32
Various	Egyptian Delta	607	20.4.43	14,202	+ 3,470	43	28,416	20,917	+ 7,499	Prf. Sh.	5½	1½	4	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	44	35	36	9 11/16
	Midland of W. Australia ...	277	Apr., 1943	34,426	+ 8,799	40	320,996	203,110	+ 17,886	Inc. Deb.	95	90	98	6½
	Nigerian	1,900	27.2.43	72,670	— 24,705	46	3,262,161	2,894,620	+ 367,541	—	—	—	—	—
	South Africa	13,291	1.5.43	790,304	+ 476	4	3,722,532	3,428,064	+ 294,468	—	—	—	—	—
	Victoria	4,774	Jan.. 1943	1,480,058	+ 169,521	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ⅛

† Receipts are calculated @ 1s. 6d. to the rupee

Argentine traffics are given in sterling calculated @ 16⅔ pesos to the £

§ ex dividend